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Fiscal Year 1989

ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT
Section 706(b), Report Number 3

United States Department of Agriculture
Forest Service

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Preface

Management of the Nation's National Forests has been shaped by a variety of laws and regulations. In the last 15 years, the most instrumental of these laws has been the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) and the National Forest Management Act of 1976 (NFMA). These two acts established specific procedures and guidelines for assessing the Nation's forest and rangeland resources and for developing Forest Plans to guide the management of each National Forest.

In Alaska, three additional pieces of legislation have affected the National Forests. The Alaska National Interest Lands Conservation Act of 1980 (ANILCA) provided a comprehensive treatment of Alaska land issues related to land claim disputes and management of Federal areas. Many of the issues addressed in the 1980 act were carry-overs from earlier legislation, primarily Section 17(d-2) of the Alaska Native Claims Settlement Act of 1971 (ANCSA). The issues had to be resolved before the State of Alaska and Native corporations established through ANCSA could complete land selections. These land selections were authorized in the Alaska Statehood Act of 1959 as well as the Alaska Native Claims Settlement Act.

ANCSA facilitated the transfer from Federal administration to Native corporation ownership of approximately 550,000 acres from the Tongass National Forest. The Statehood Act authorized the State of Alaska to select up to 400,000 acres of land from the National Forest System. The bulk of the land to be conveyed to the State of Alaska from the National Forests was identified when the State completed its final round of selections in 1989.

During the deliberations that lead to the Alaska Lands Act, Congress determined that monitoring the programs on the Tongass would be beneficial. To that end, Congress required that a series of reports be prepared to keep the Congress informed on the status of the Tongass National Forest. This report is the third in the series of reports required in Section 706(b). The groups identified in Section 706(c) of the Act have been given the opportunity to review and comment on the draft of the report. A copy of the comments received is included in an Appendix along with the Forest Service's response to the concerns raised by the correspondents.

Executive Summary

Status of the Tongass National Forest

The Federal government is the largest land manager in Southeast Alaska. Within the Federal sector, the Tongass National Forest is the largest single component. The Tongass National Forest, which consists of approximately 16.7 million acres, stretches from the Yakutat Forelands at the north to the lower tip of Prince of Wales Island at the south, a distance of almost 500 miles.

The fiscal year 1989 report, Status of the Tongass National Forest, provides information requested by Congress in Section 706(b) of the Alaska National Interest Lands Conservation Act (ANILCA) which indicated that the

> "*report shall include, but not be limited to, (1) the timber harvest levels in the forest since the enactment of this Act; (2) the impact of wilderness designation on the timber, fishing, and tourism industry in southeast Alaska; (3) measures instituted by the Forest Service to protect the fish and wildlife resources in the forest; and (4) the status of the small business set aside program in the Tongass Forest.*"

Revising the Tongass Land Management Plan

A process to revise the current Tongass Land Management Plan was started in 1987. Congressional proposals and other public expressions calling for changes in the management direction for the Tongass are being addressed in this process. With the June 1990 publication of a Draft Environmental Impact Statement containing several revision alternatives, this process is now more than half complete.

Timber Harvest Levels

Timber harvest on the Tongass National Forest declined from 339.5 million board feet in 1981 to 162.5 million board feet in 1985. In a dramatic market reversal which boosted Southeast Alaska's timber output substantially, timber harvest on the Tongass National Forest began increasing in 1986 in a climb that continues through 1989 to a new harvest record since ANILCA of 377 million board feet.

Impacts of Wilderness

With the passage of ANILCA, Congress designated over 5.4 million acres of the Tongass National Forest in 14 new units of the National Wilderness Preservation system. A concern of Congress in passing ANILCA was the impact of wilderness designation on three major industries in Southeast Alaska: forest products, fisheries, and tourism. The changes in employment levels in these three major industries in Southeast Alaska are better linked to changes in demand, supply and institutional variables than changes in wilderness designations. In general, an economic effect on employment and personal earnings in Southeast Alaska of designating land as wilderness in ANILCA cannot be distinuished from other more powerful economic forces which have undergone radical changes between 1981 and 1989.

Measures Instituted to Protect Fish and Wildlife

Forty percent of the areas having high wildlife values and 50 percent of the areas having high commercial and recreational fish values have been placed in wilderness or in unroaded areas managed to maintain their wildland character. The activities leading to the revision of the Tongass

Land Management Plan have resulted in a number of cooperative efforts to better identify, document, and plan for the needs of the fish and wildlife resources of the Tongass. Recommendations on which species to name as management indicator species have been developed cooperatively with other Federal and State agencies. Habitat capability models for 16 species have been developed. These models will enable managers to determine likely effects on these species as a result of various management activities.

Studies to develop and demonstrate silvicultural treatments that have the potential of benefitting timber, wildlife, and fish production are continuing. While the long-term results of these studies will not be known for some time, it appears that certain treatments do prolong the use of second growth areas for some wildlife species.

Since 1980, 104 cooperative fisheries enhancement projects have been completed which are expected to produce approximately 11.5 million pounds of "new" salmon annually when salmon runs are fully established.

Status of the SBA Timber Program

In 1977 the Forest Service, in cooperation with the Small Business Administration, increased the amount of timber set aside for small businesses in the Alaska timber industry. Since 1980, qualified small businesses through the Set-Aside Program, have purchased 485.6 MMBF. About half of the timber sold is of sufficient quality to manufacture into cants or lumber, while the remaining timber is made into pulp.

Early in 1989, two manufacturers were determined to be other than a small business for the purpose of processing volume from set-aside sales. As a result, the Forest Service and the Small Business Administration agreed not to set-aside any more volume in fiscal year 1989 beyond what had already been set-aside at that time and to set-aside only 40 MMBF in fiscal year 1990 unless the demand warranted setting additional volume aside. Purchasers of previous set-aside sales that were due to expire prior July 1, 1990 were offered extensions to allow them time to find markets for their sales. Although SBA volume offered in fiscal year 1989 was low, SBA firms purchased 54 MMBF out of the 79 MMBF short-term volume offered.

Research

The research program conducted by the USDA Forest Service Pacific Northwest Research Station in Southeast Alaska is a composite of basic and applied research and development. The objective is to serve society by improving understanding, use, and management of natural resources. It creates knowledge of biological, physical, ecological, social, and economic relationships needed to manage and protect the Tongass National Forest as well as lands of other ownerships and use in the unique forests of the Alexander Archipelago. The information is made relevant and readily available to resource specialists, managers, scientists, and the public. Use of improved information and technology is advocated. The research program provides impartial information for the public's understanding and evaluation of issues related to natural resources.

The research program in Southeast Alaska is funded in part by funds appropriated for Forest Service Research and allocated to the Pacific Northwest Research Station, and in part by funds appropriated for management of the Tongass National Forest. The research program has and will continue to use a multi-disciplinary approach that focuses on timber, wildlife, fisheries, and related resource problems. Much has been accomplished, a variety of research efforts are underway, and there are plans for the future.

Roads provide access for recreation as well as timber harvest activities in the Tongass National Forest.

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The eagle population is greater in Southeast Alaska than any other place in the world.

CHAPTER 1

REVISING THE TONGASS LAND MANAGEMENT PLAN

A process which will lead to the revision of the current Tongass Land Management Plan was initiated in 1987. Congressional proposals and other public expressions calling for changes in the management direction for the Forest are being addressed in this process. This chapter discusses key results of the revision process to date and when it is likely to be completed.

Since the 1987 Status of the Tongass National Forest Report (Report 2) was released, considerable public and agency attention and effort has been focused on a process to revise the Tongass Land Management Plan. With the recent publication of a Draft Environmental Impact Statement containing several revision alternatives, this process is now more than half complete.

WHY A REVISION?

National Forest land managers, after listening to public concerns, made decisions about how to manage the Tongass National Forest through the Tongass Land Management Plan, which was approved in 1979 and subsequently modified by the Alaska Lands Act of 1980. To ensure that forest plans, such as the Tongass Plan, continue to be responsive to public concerns and issues, the National Forest Management Act of 1976 (NFMA) requires all forest plans to be revised on a "10-year cycle or at least every 15 years." Consequently, a process to revise the Tongass plan was initiated in 1987 to comply with NFMA.

The original Tongass Land Management Plan identifies forest-wide management goals, anticipated levels of resource output, land allocations which define where opportunities for public use are available, and more specific direction for each of 141 management areas, including schedules for management activities. Other direction was provided for implementing, amending and revising the Tongass Land Management Plan, as well as monitoring and evaluation. Amendments made in 1986 updated the Tongass Land Management Plan in a number of ways. The amendments clarified some goals, updated the schedules of management activities, and provided more comprehensive direction for implementation. Also modified were the monitoring and evaluation requirements of the Tongass Land Management Plan and changes were made in the provisions for amendment and revision.

The Tongass Land Management Plan was the first plan in the nation completed after passage of the NFMA. Similarly, the Plan will be among the first to undergo a revision. As the revision proceeds, implementation of the existing Tongass Land Management Plan is continuing.

HOW WE HAVE BEEN PROCEEDING WITH THE REVISION

The revision of the Tongass Land Management Plan has been following the 10 planning steps required by the NFMA implementation regulations (See Figure 1 for a summary of the 10-step planning process). Public issues and concerns were identified through an extensive public involvement effort at the beginning of the process. These issues were consolidated into a complete set and widely distributed in a "Tongass Review" newsletter during May, 1989.

FIGURE 1. THE 10 PLANNING STEPS OF THE NATIONAL FOREST MANAGEMENT ACT REGULATIONS BEING FOLLOWED IN REVISING THE TONGASS PLAN

Steps completed to date
1. Identification of Public Issues, Management Concerns, and Resource Opportunities 2. Development of Planning Criteria 3. Collection of Inventory Data and Resource Information 4. Analysis of the Management Situation 5. Formulation of Alternatives 6. Estimation of the Effects of the Alternatives 7. Evaluation of the Alternatives 8. Preferred Alternative Recommendation
Step that will follow the publication of the DEIS
9. Development and Approval of a Revised Tongass Forest Plan.
Step that will follow publication of the Final Environmental Impact Statement and Revised Forest Plan
10. Monitor and evaluate the implementation of the Revised Forest Plan

A comprehensive data base has been developed to provide the best available information for the revision process, using Geographic Information System technology. This data base provides information which is key to understanding the current management situation, identifying the potential to produce future resource outputs from the Forest and in developing alternatives for revising the Tongass Forest Plan.

An important part of the revision process is the analysis of the management situation (Step 4 of the 10-step NFMA planning process). Summary findings of the Forest's analysis of the management situation were released in the December 1989 publication, "Understanding the Past, Designing the Future". This document details some of the history that influences the decisions to be made in the Revised Plan, and reports on some of the resource potentials and relationships that have been analyzed through use of the FORPLAN (FORest PLANning) computer model. Working drafts of the complete three volume analysis of the management situation were published in January 1990.

DETERMINING THE NEED TO CHANGE MANAGEMENT DIRECTION

The concluding part of the analysis of the management situation (Step 4 of the process) is a determination of the need to change management direction. The elements of management direction include the goals, objectives, standards and guidelines, prescriptions, land allocations, allowable sale quantity, and monitoring and evaluation requirements that are to be established by a Forest Plan. This determination of a need to change provides a focus for the revision of the Forest Plan by identifying the types of changes to the current Plan that should be analyzed.

The Interdisciplinary Team for the revision process examined the management direction of the Tongass Land Management Plan and how it could be revised to respond to identified public issues and management concerns. The resulting detemination of a need for change does not commit the Forest Service to any particular action; however, the results did suggest the kinds of adjustments to the current management direction that should be considered.

RESULTS OF THE DETERMINATION OF A NEED TO CHANGE MANAGEMENT DIRECTION

The results from this determination are summarized as follows:

1. **Multiple-use goals and objectives for the Forest** - Changes in some of the management goals and objectives of the Tongass Land Management Plan will be needed to respond to the issues and concerns that have been identified.

2. **Multiple-use management prescription and land allocations** - The use of more specific management prescriptions with accompanying standards and guidelines in a revised Plan (see Item 3 following) may lead to better management of individual resources in a multiple-use context and in relation to specific areas. The Tongass Land Management Plan developed only four land use designations to provide a framework for land allocation decisions and applied them to fairly large, watershed-based land areas called Value Comparison Units (VCUs). The new prescriptions could be applied to more specific land areas and address more specific resource management needs than the TLMP land use designations.

The mix and pattern of land allocations is also at issue, with some of the interested public wanting to ensure an adequate timber supply, and others wanting less harvest and more land allocated to maintain its wildland character. The pending national legislation for the Tongass is an indicator of a need to consider adjustment to current land allocations and other management direction.

3. **Management area standards and guidelines** - Revising the current Plan provides an opportunity to review and update existing management standards and guidelines and to incorporate them into the revised Plan. Standards and guidelines specify how projects and activities are to be carried out on the Forest. The standards and guidelines for the current Plan are now contained in the Alaska Regional Guide and Regional Handbooks.

4. **Lands suitable for timber production** - With current Geographic Information System and mapping technology, the revision process provides an opportunity to more clearly display where the suitable acres for timber production associated with the revised Plan will be located. In the current Plan, 1.75 million acres were determined to be suitable for timber production, but it has been difficult to define where these acres are located within the watershed-based units they are contained in. This has made it difficult to inform interested publics about where timber harvest activities are and aren't permissible in a site-specific manner.

5. **The allowable sale quantity for timber** - There is a need to reevaluate the allowable sale quantity for the forest, which establishes the maximum amount of timber that may be sold from the Forest during the life of the Forest Plan. The current Plan established an average annual allowable sale quantity of 450 million board feet of timber. Timber offered for sale or release under this allowable sale quantity has been responsive to the resource requirements of the Southeast Alaska timber industry, which is largely dependent upon raw materials from the Tongass National Forest, and to helped maintain timber-related employment opportunities in the region. The actual amount of timber sold, released and harvested has been well under the allowable sale quantity thus far.

The overall timber harvest and employment picture in Southeast Alaska's timber industry is expected to change in the coming decade. The high levels of timber harvest on Native corporation lands during the 1980's are expected to fall off in the near future as available timber supplies diminish. Currently, overall timber demand is at near record highs, and projections for demand remain strong well into the 1990's. Increased demand for National Forest timber is expected. At the same time, many members of the interested public believe timber harvest levels should be reduced on the Tongass. They would like to see more of the forested lands kept in a wildland state and not be subject to harvest.

6. **Monitoring and evaluation requirements** - Changes to the monitoring plan will be needed to be responsive to new management prescriptions and standards and guidelines. Updating the monitoring and evaluation requirements will facilitate evaluation of the revised Forest Plan as implementation proceeds. The current Forest Plan provided direction for monitoring and evaluation, primarily for monitoring development-related activities.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Draft Environmental Impact Statement (DEIS) for the revision was released for public review and comment at the end of June, 1990. This document describes several alternatives for managing the resources and uses of the Forest in response to the need for change, and discloses the potential environmental effects of implementing these alternatives. Seven alternatives, and three variations of these alternatives, were considered in detail in the DEIS. They collectively represent:

1) Current Direction -- continue present management direction.

2) Local Options -- emphasize resource opportunities and uses through land allocations that are responsive to many local issues.

3) Less Development -- 4 of the 7 alternatives consider increasing the emphasis on fish, wildlife, recreation, wilderness, primitive areas and maintenance of scenic values, with corresponding reductions in timber supply. These alternatives incorporate aspects of pending national legislation and specific land allocations supported by many local elected officials.

4) More Development -- make available an expanded timber supply from the National Forest to compensate for possible declines in timber supply on private lands in Southeast Alaska.

The Regional Forester's preferred alternative, which calls for major changes in the management of the Forest, is also included with the DEIS documents. It draws on aspects of the other alternatives and adds a number of unique provisions in portraying how the Forest Service believes the existing management situation should be addressed.

With the release of the Draft Environmental Impact Statement, an extensive public participation program has been undertaken to gather comments from all interested people. The public comment period on the DEIS will last at least three months. The comments gathered will be analyzed to determine if there are additional issues that should be considered, and what adjustments should be made to the DEIS to address public concerns. Opportunities for public participation include open-houses planned throughout Southeast Alaska and other locations, as well as the submission of written and verbal comments.

WHEN WILL THE REVISION BE COMPLETED?

Considering all the concerns and interests likely to be raised in the public involvement phase for the DEIS will take some time. A Final Environmental Impact Statement and revised Forest Plan could be available within 12 to 18 months after the comment period closes for the DEIS.

After the Final Environmental Impact Statement and revised Forest Plan are finalized, a Record of Decision will be completed by the Regional Forester. The new management direction contained in the revised Forest Plan will then take effect. Until that time, management of the Forest will continue to be directed by the current Plan.

WHAT WILL A REVISED FOREST PLAN BE LIKE?

Similar to the current Tongass Land Management Plan, the revised Plan will be a programmatic document which describes how the Forest will be managed for 10 to 15 years. The main elements of the management direction it will contain include Forest multiple-use goals and objectives; prescriptions and standards and guidelines for management areas (land allocations); identification of lands suitable for timber production; determination of the allowable sale quantity; and monitoring and evaluation requirements. The revised Plan may also include recommendations for special land classifications requiring a higher approval authority than the Regional Forester has. Examples of these include recommendations for Wilderness, Wild and Scenic Rivers, and Research Natural Areas, such as those contained in the Regional Forester's preferred alternative.

The revised Plan is unlikely to contain project-level decisions. Decisions involving the irretrievable commitment of resources are generally made during Plan implementation after projects have been adequately analyzed and site-specific environmental impacts have been adequately disclosed, in conformance with the requirements of the National Environmental Policy Act.

The analysis in the final Environmental Impact Statement for the revised Plan will be appropriately structured and detailed to display the environmental effects of the programmatic direction the Plan contains.

Figure 2.1 Timber Harvest in Southeast Alaska

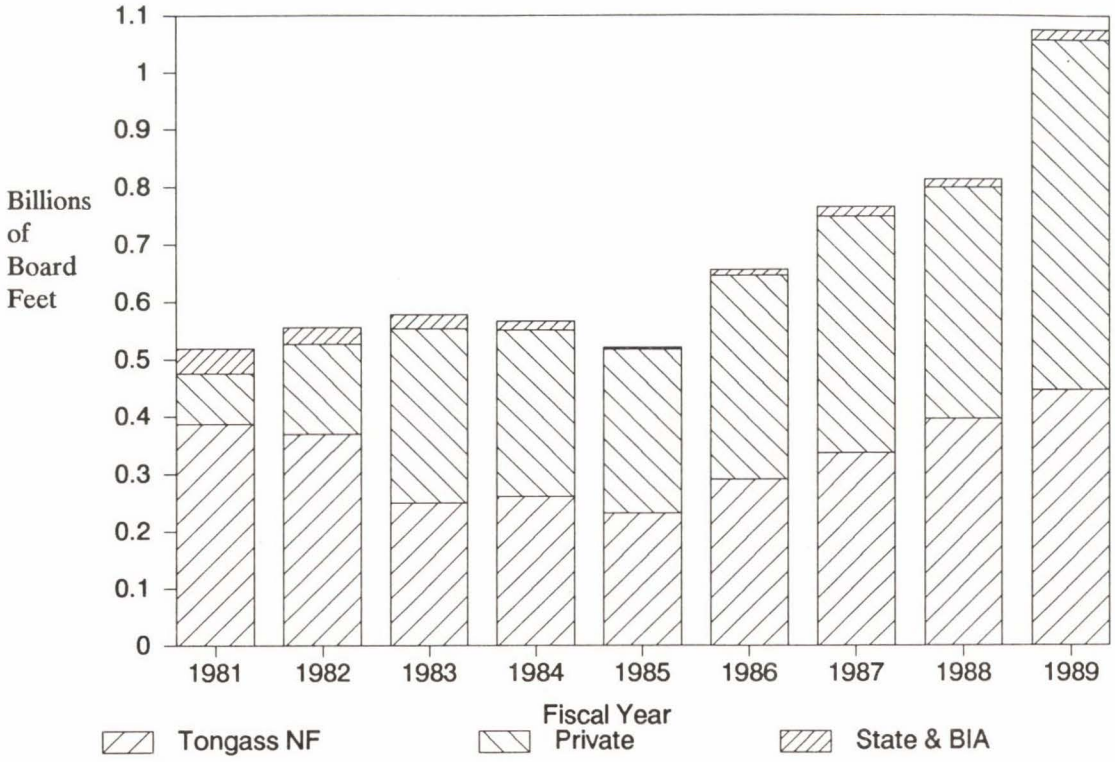
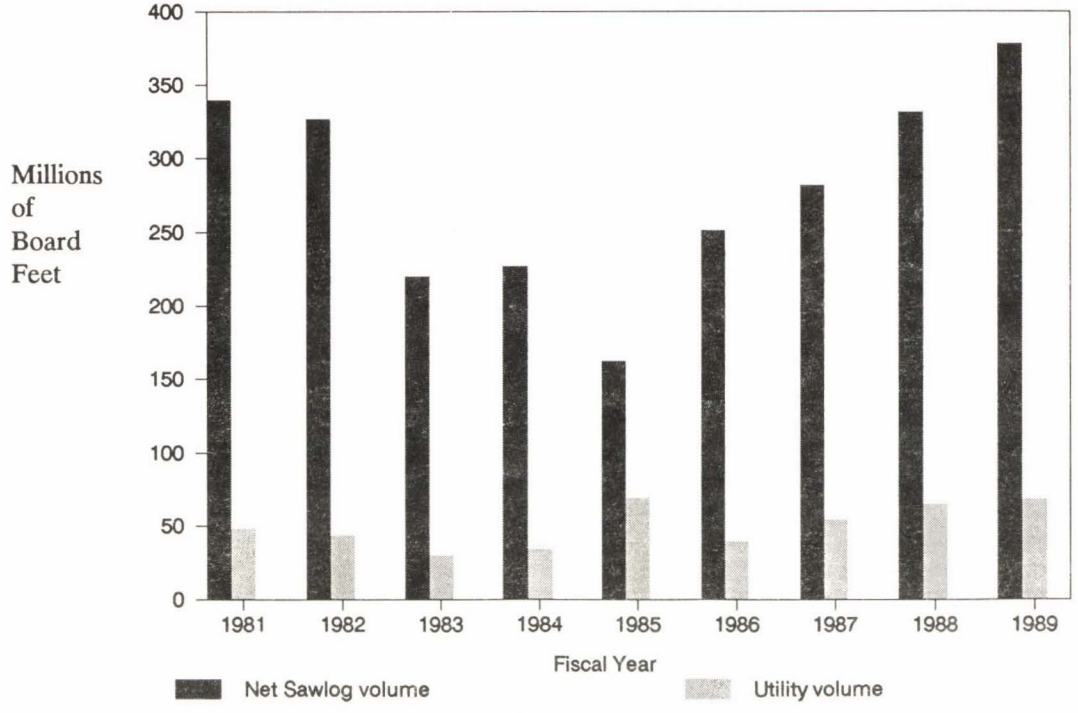


Figure 2.2 Timber Harvest on the Tongass National Forest



Chapter 2
Timber Harvest Levels in the Tongass National Forest Since ANILCA

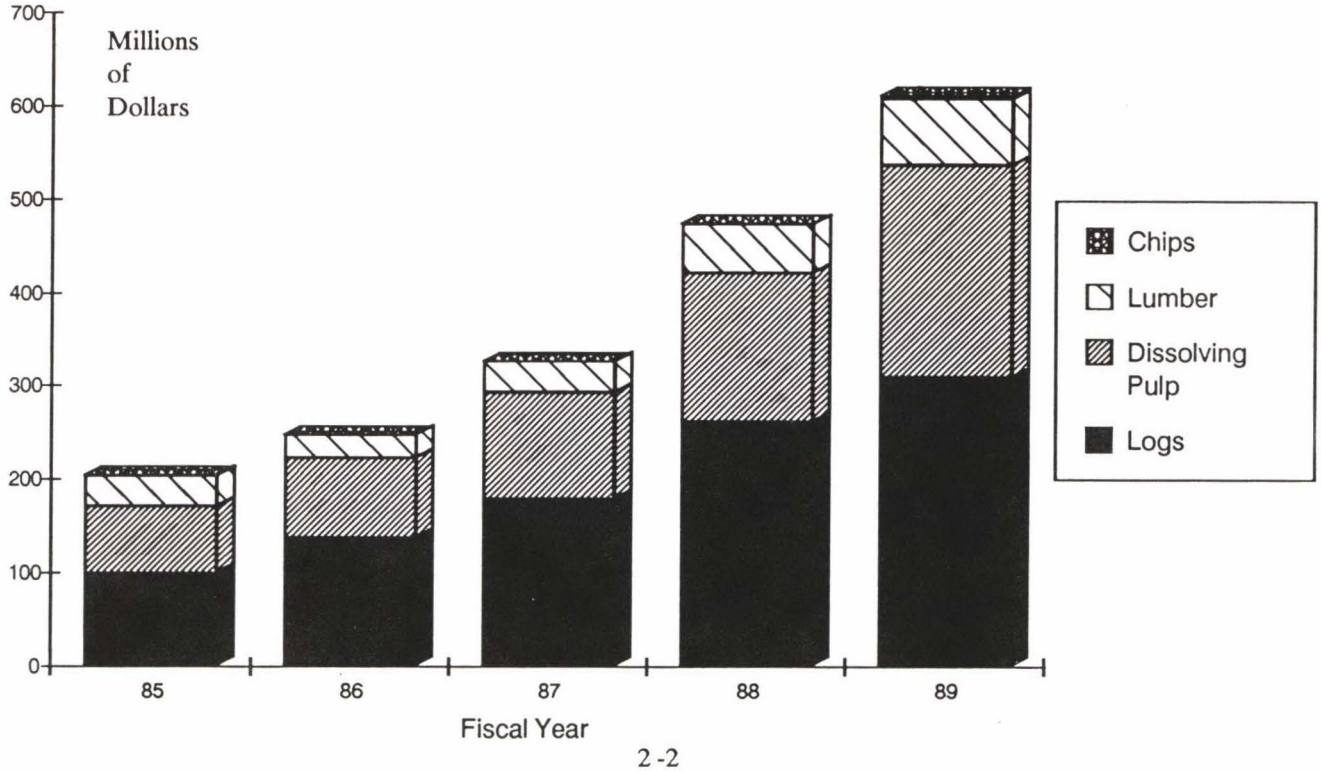
This chapter examines the timber program on the Tongass National Forest since ANILCA, and the factors, both market and institutional, which have affected timber harvest. Harvest of timber from National Forest, State, and private lands in Southeast Alaska is summarized for the period 1981 to 1989.

Congress passed ANILCA (P.L. 96-487) in fiscal year 1981. Timber harvest on the Tongass National Forest declined from 339.5 million board feet in 1981 to 162.5 million board feet in 1985. In a dramatic market reversal which has boosted Southeast Alaska's timber output substantially (see figure 2.1), timber harvest on the Tongass National Forest began increasing in 1986 in a climb that continues through 1989 to a new harvest record since ANILCA of 377 million board feet (figure 2.2). Research completed in fiscal year 1989 by the Pacific Northwest Research Station of the Forest Service concludes that international market demand is sufficient to expect further increases in timber harvest on the Tongass:

"Total harvest in Alaska is expected to average 660 million board feet per year during the early 1990's, and 545 million per year in the decade 1995-2005. Harvest from National Forests necessary to equate total supply with expected demand will remain roughly constant at 400 million board feet per year for the period 1990-2010."

This projection for the National Forests is based on an assumption that private ownerships will continue to supply roughly 375 million board feet in 1990, roughly 160 million board feet by 1995 and 100 million board feet in 2005. Approximately 45 million board feet would be needed from other sources such as the State of Alaska, imports, etc. The projected increases in timber harvest anticipate continued rapid growth of the Pacific Rim economies and their trade. Unlike the National Forests of the continental United States which serve domestic timber markets, the pulp and lumber manufactured in Alaska are exported internationally. Alaskan pulp and lumber are made principally from timber harvested on the Tongass National Forest. These forest products manufactured and marketed in Southeast Alaska complement the efforts of the Alaska Native corporations to export logs from lands conveyed to them under the Alaska Native Claims Settlement Act (ANCSA , P.L. 92-203). In total, the value of forest products exports from Alaska has tripled over the last four years, rising from $204.5 million in 1985 to more than $612 million in fiscal year 1989 (see figure 2.3).

Figure 2.3 Value of International Exports of Alaskan Forest Products



Collectively, the industry in Southeast Alaska has succeeded in significantly penetrating the Japanese, Korean and Taiwanese markets with an array of forest products (see figure 2.4).

The forest products industry in Southeast Alaska exports high quality pulp products which are competitive world-wide. In fiscal year 1989, exports of wood pulp from Alaska set new records for quantity, value and average value per metric ton. In tonnage, the 297 thousand metric tons exported in fiscal year 1989 was 14 percent greater than 1988 and represented a 78 percent gain over 1985. The value of pulp exports climbed to $228 million in fiscal year 1989 from $160 million in 1988 and $72 million in 1985. The average value of the pulp exported has risen in the last four years from $419 per metric ton in 1985 to over $767 per metric ton in fiscal year 1989.

The two producers of dissolving pulp in Southeast Alaska depend on wood supplies from the Tongass National Forest. Over the last two fiscal years roughly 78 percent of their wood supply came from the Tongass National Forest (see figure 2.5). An increasing portion of the pulp mills' wood supply is wood wastes produced by Southeast Alaska's lumbermills.

Lumber shipments abroad from Alaska rose again in fiscal years 1988 and 1989, rising to 182 million board feet. Increasing almost 20 percent over 1988, lumber exports of Alaskan processed lumber are up 95 percent over the 1986 exports levels of 93.5 million board feet.

Figure 2.4 International Exports of Alaskan Forest Products by Major Importing Countries

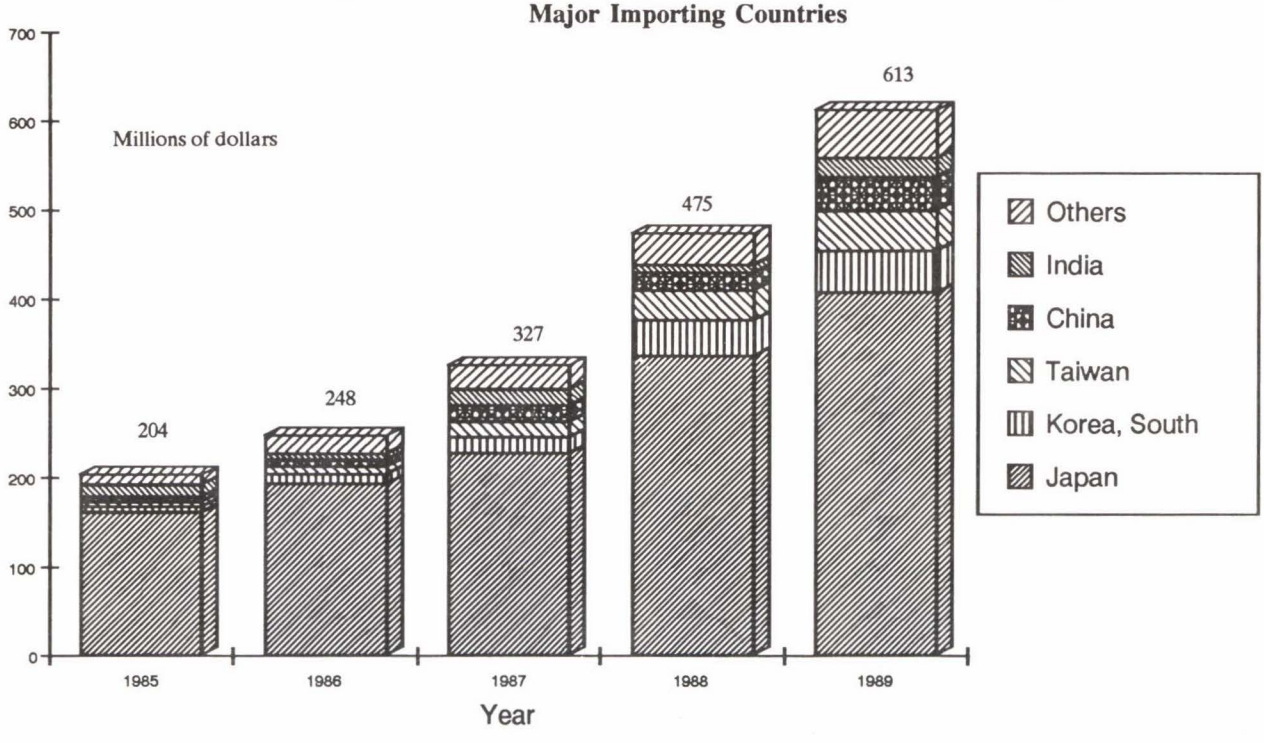
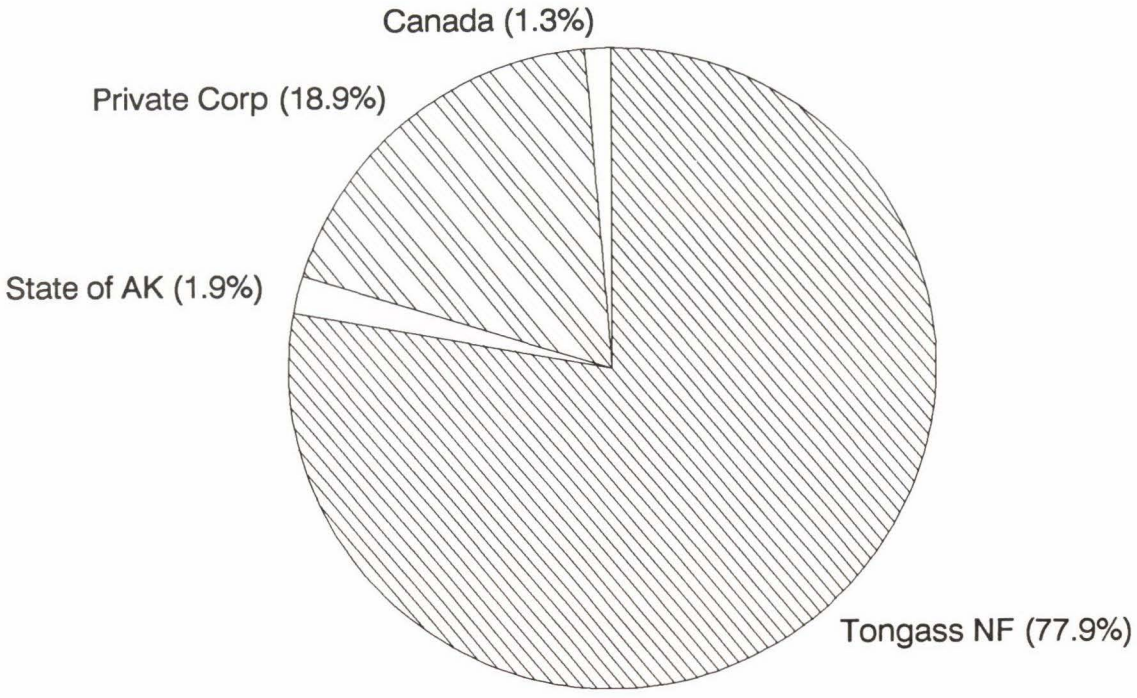


Figure 2.5 1988-1989 Sources of Wood for Dissolving Pulp Manufacturers in Southeast Alaska.



Commercial fisheries is one of the major industries in Southeast Alaska.

The Forest Service maintains 190 public use recreation cabins within the Tongass National Forest. Many of these cabins are in Wilderness areas.

CHAPTER 3

THE IMPACT OF WILDERNESS DESIGNATIONS ON THE FOREST PRODUCTS, FISHERIES AND TOURISM INDUSTRIES OF SOUTHEAST ALASKA

With the passage of ANILCA, Congress designated over 5.4 million acres of the Tongass National Forest in 14 new units of the National Wilderness Preservation system. A concern of Congress in passing ANILCA was the impact of wilderness designation on three major industries in Southeast Alaska: forest products, fisheries, and tourism. This chapter examines the effects of wilderness designation on these three industries for the period 1981 to 1989. In general, an economic effect on employment and personal earnings in Southeast Alaska of designating land wilderness in ANILCA is not discernable.

A comparison of the trends in employment and earnings for the forest products, fishing and tourism industries is displayed in Figures 3.1 and 3.2. The changes in employment levels in these three major industries in Southeast Alaska are better linked to changes in demand, supply and institutional variables than changes in wilderness designations. In general, an economic effect on employment and personal earnings in Southeast Alaska of designating land Wilderness in ANILCA cannot be distinguished from other more powerful economic forces which have undergone radical changes between 1981 and 1989.

THE EFFECTS OF WILDERNESS ON THE FOREST PRODUCTS INDUSTRY

In general, an economic effect on employment and personal earnings of designating additional land Wilderness in ANILCA is not discernable. Personal earnings are defined as wages, salaries and the income of proprietors. An increase in harvesting costs in logging and road construction costs may have been experienced as more of the harvest was shifted to sites with a lower volume of timber per acre.

Since 1981, the changes in employment levels in the timber industry in Southeast Alaska are better linked to changes in demand, supply and institutional variables than changes in wilderness designations. Forest products employment in Southeast Alaska contracted between 1980 and 1985 because the United States dollar rose to all-time highs relative to most major currencies. This rise in the dollar made Alaskan forest products exported to the Pacific Rim uncompetitive with other suppliers (most of the forest products manufactured in Southeast Alaska are shipped to foreign destinations in the Pacific Rim).

The market slump forced forest products manufacturers in Southeast Alaska to revise their personnel and investment policies to boost competitiveness. When the United States dollar reversed directions in the foreign exchange markets in the mid-1980's, forest products employment in Southeast Alaska expanded with growing exports of wood products to Pacific Rim markets in Asia.

Figure 3.1. Employment Dependent on Forest Products, Commercial Fishing, Tourism and Resident Recreation in Southeast Alaska, 1981-1989

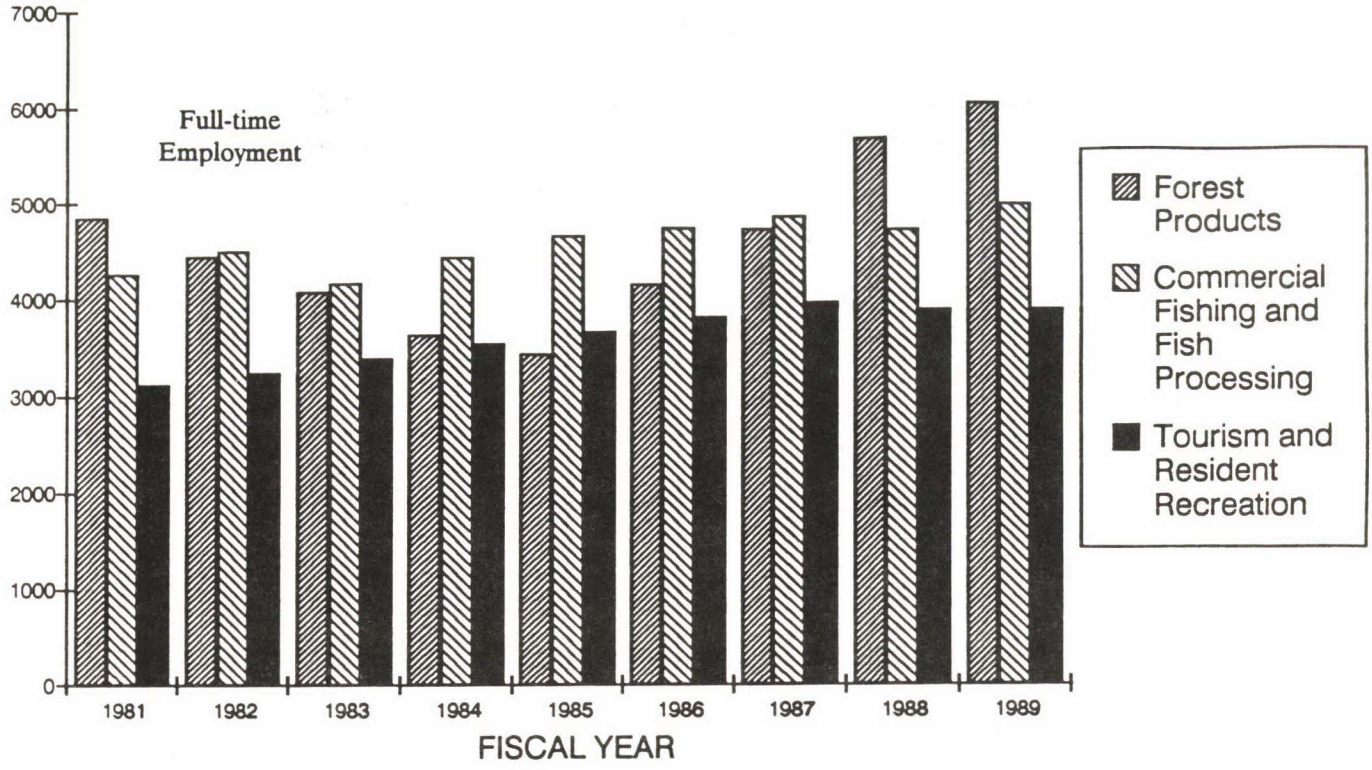
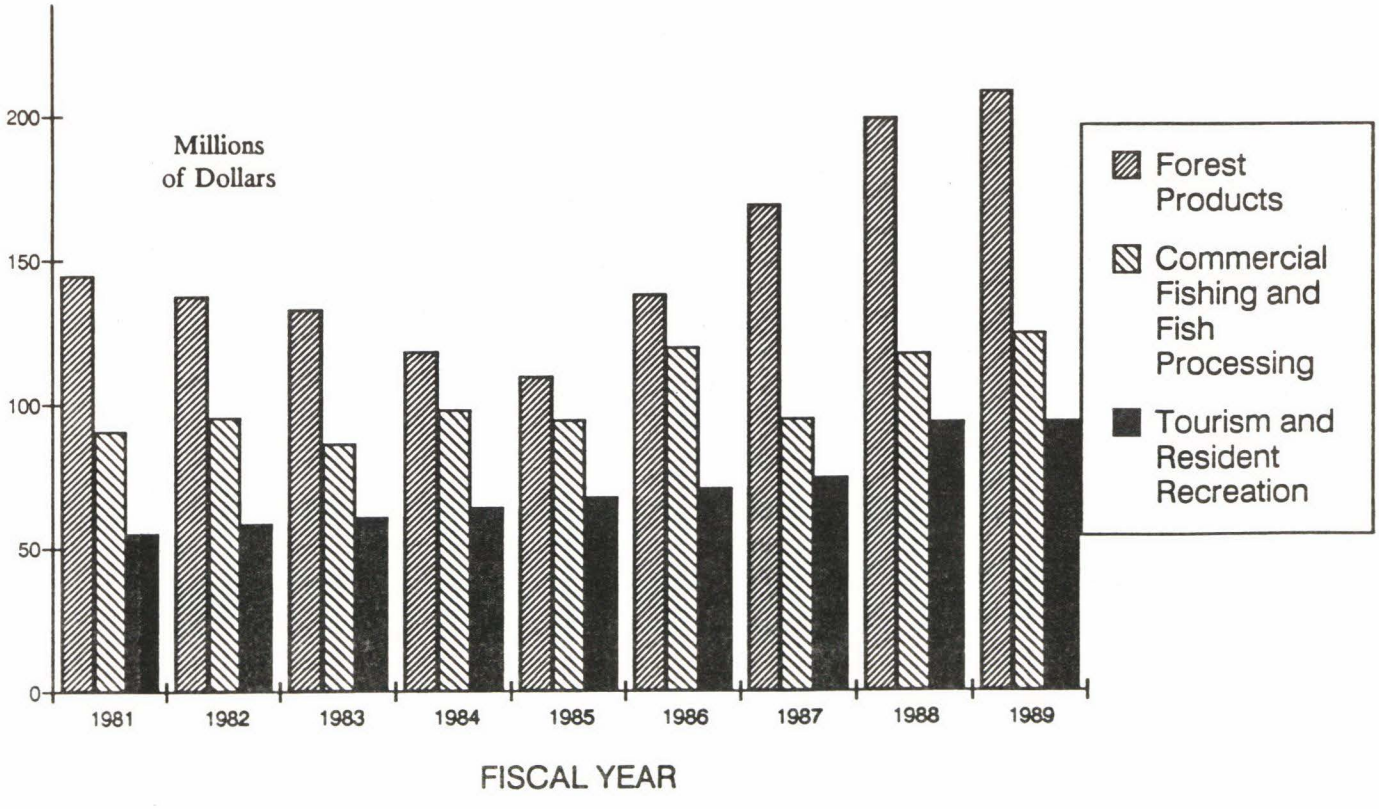


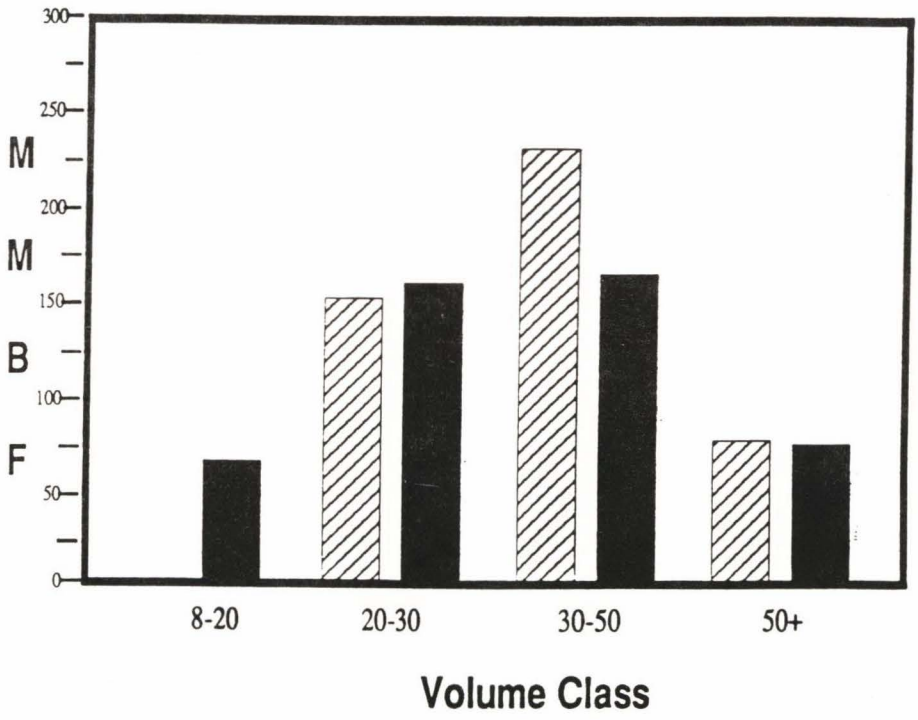
Figure 3.2. Personal Earnings Dependent on Forest Products, Commercial Fishing, Tourism and Resident Recreation in Southeast Alaska, 1981-1989



Forest products employment in Southeast Alaska rose to new highs in the last two years as the export market absorbed increased output of manufactured forest products from the Tongass National Forest and logs exported from private corporation lands conveyed to Alaska Native Corporations under ANSCA. In fiscal year 1989, timber from the Tongass National Forest supported nearly 45 percent of the logging employment in Southeast Alaska, roughly 70 percent of employment in pulpmills and almost all of Southeast Alaska's employment in lumber manufacturing.

When Congress designated 14 new wilderness areas in ANILCA (5.4 million acres), the commercial forest land base on the Tongass National Forest was reduced by over 1.6 million acres. A combination of planning objectives and the change in the timber base due to the Wilderness designations increased the reliance of the Tongass timber program on timber stands in the lower timber volume classes (less than 20 MBF per acre)(Figure 3.3). As the lower volume stands are harvested, harvesting costs, including road costs, may increase if a greater portion of timber stands require advanced logging technology and additional miles of access roads. Many of these potential impacts on harvesting costs did not occur. In large part, timber-sale operators avoided the most difficult sites and areas with the lowest quality timber because the adverse markets between 1982-86 reduced the total harvest on the Tongass significantly.

Figure 3.3 The Change in the Scheduling of the Annual Sale Quantity of the Tongass Land Management Plan When 1.6 Millions Acres of Commerical Forest Was Designated Wilderness in ANILCA.



THE EFFECTS OF WILDERNESS DESIGNATION ON THE FISHING INDUSTRY

Effects on Fish Production

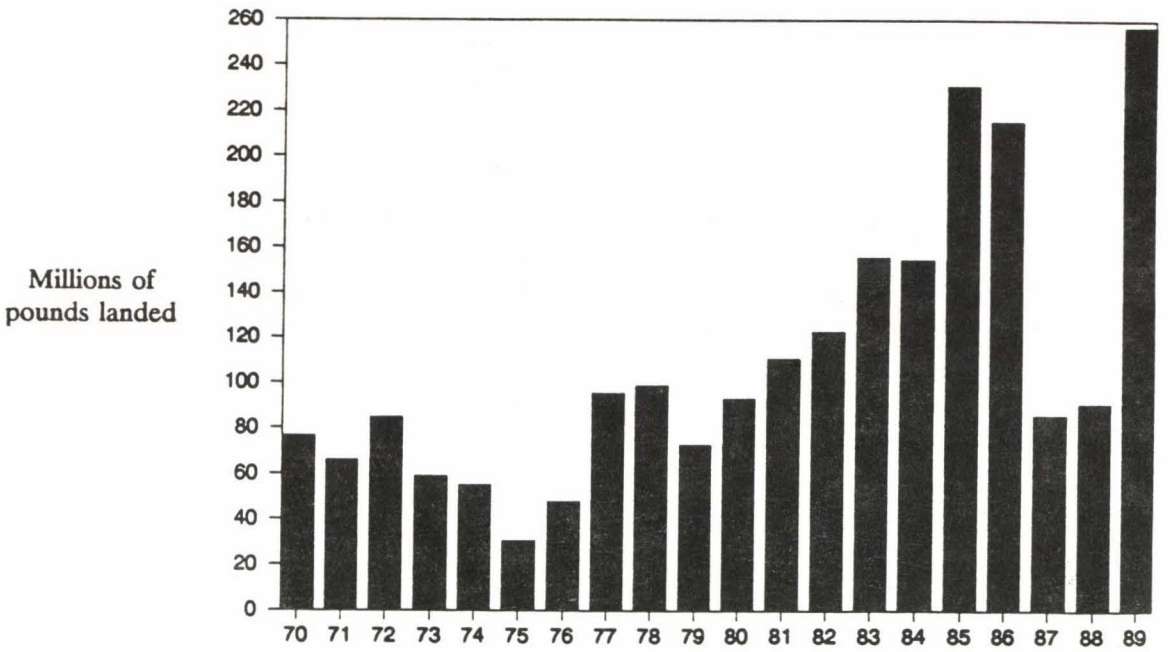
Congress provided special management provisions in ANILCA which recognized the need to maintain Alaska fish production at optimum sustained yield levels while assuring that the physical aspects of wilderness were protected. ANILCA (Section 1315) permits fisheries enhancement activities within Alaska's designated wilderness areas. Under this management direction wilderness designations have not impacted fish production.

In 1983, the Forest Service cooperatively developed and implemented "Tongass National Forest Cooperative Fisheries Enhancement Planning." According to these guidelines, fisheries enhancement projects within Wildernesses are approved only when non-Wilderness alternatives do not meet enhancement objectives.

Several species of salmon use aquatic habitat on the Tongass National Forest to spawn. After emerging from their eggs, the juvenile salmon rear in fisheries habitat on the Tongass until they return to the ocean. These salmon migrate around the North Pacific for two to five years as they mature. Upon reaching maturity, the surviving adult salmon return to Southeast Alaska where some are harvested in the commercial fisheries, some are taken by subsistence users, some are caught in the sport fishery and some are allowed to escape to spawn.

Changes in fish harvest in Southeast Alaska due to wilderness designations in ANILCA are indistinguishable from natural variability in salmon populations, changes in management of salmon species both within Alaska and in the North Pacific, and investments made to protect and expand natural habitat as well as expansion in hatchery capacity. Salmon harvest in Southeast Alaska for 1970-89 is displayed in figure 3.4.

Figure 3.4 Commercial Salmon Harvest, Southeast Alaska, 1970-89



Effects on Commercial Fisheries Industry in Southeast Alaska

Historical estimates of volume, value and employment in the commercial fishery of Southeast Alaska (figure 3.5) suggest that from one-half to two-thirds of the fish used by the fish processing industry are salmon. Assuming that employment in the industry is proportional to some combination of the values and volumes of fish processed, then from one-half to two-thirds of the industry's employment is dependent on salmon. If habitat is proportional to ownership of timberland in Southeast Alaska, then the streams flowing through the Tongass National Forest would contribute up to 80 percent of the salmon harvest. This result assumes that hatchery-reared stock in the harvest is minor and the combined catch of hatchery stocks, wild stocks originating outside of Southeast Alaska, and wild stocks reared on private or State lands total approximately 20 percent of the total harvest. In short, a little over half of the commercial fisheries employment in Southeast Alaska relies on spawning and rearing habitat on the Tongass National Forest. The balance of the fisheries' employment depends on other species or salmon reared on private or State land in Southeast Alaska.

Employment in the commercial salmon fishery in Southeast Alaska is affected by a number of policy and biological factors which include but are not limited to: the permitting policies of Alaska's Commercial Fisheries Entry Commission; the strength of each year's salmon runs; the escapement and subsistence needs as regulated by the Alaska Department of Fish & Game; and, the market prices of fresh and processed salmon as influenced by competitive suppliers and inventories in consuming markets. In general, the wilderness designations in ANILCA have had no discernable impact on employment in the commercial salmon fishery. Increases in salmon fishery employment are limited by regulatory controls over permits to enter the fishery. In short, changes in salmon harvest and market prices expand or contract earnings of fishermen.

Some expansion in fish processing employment has occurred since ANILCA. In large part, this growth is attributable to growth in harvest and processing of non-salmon species and aggresive marketing by Alaska's fish processors in markets for fresh, frozen and smoked salmon.

Fishery resources in Southeast Alaska are also important to the non-resident and resident recreationists. For the 5-year period 1980-1984, an average of 29,604[2] anglers participated in fishing and contributed about $20 million to the Region's economy.[3]

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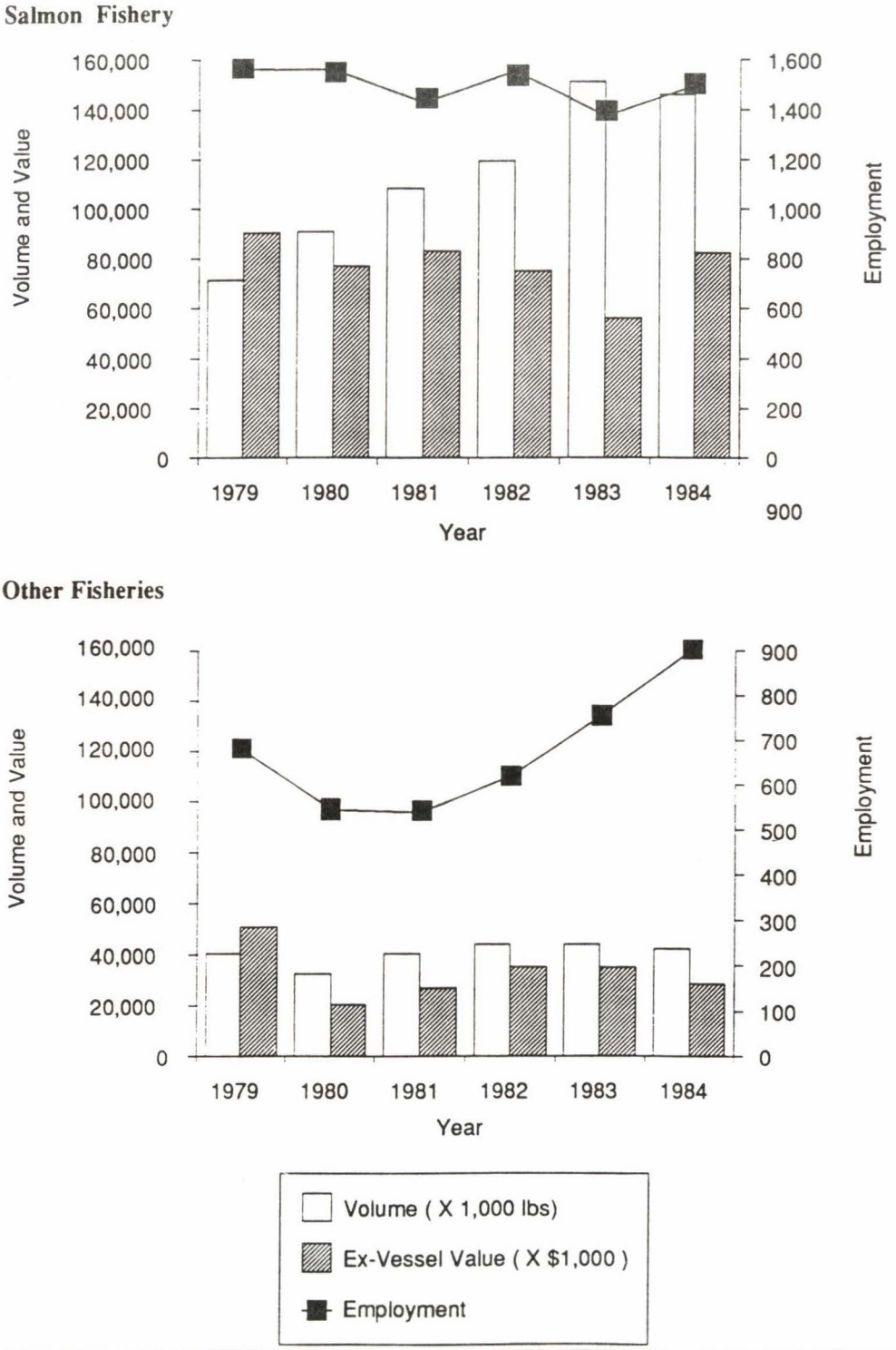
[1] Alaska Catch and Production Commercial Fisheries Statistics,
Statistical Leaflet Series: 1974-1985. Alaska Department of Fish and Game. The 1986 and 1987 harvest harvest statistics are preliminary. The gross receipts to the fishermen for the 1986 and 1987 harvests have not been published by the State of Alaska.

[2] Mills, Michael J. Statewide Harvest Survey. Federal Aid in Fish
Restoration F-9-16. Vol. 26, July 1, 1984 - June 30, 1985. Alaska Department of Fish and Game, P.O. Box 3-2000, Juneau, AK 99802

[3] Estimated value by Alaska Department of Fish and Game.

Figure 3.5 Fisheries Employment in Southeast Alaska, 1979-84

(Author's Note: The Alaska State Department of Labor(DOL) stopped estimating and reporting statistics on seafood harvesting employment in 1985 after the State Legislature discontinued funding of this special program. DOL's legislative mandate includes providing information to support the State's unemployment insurance program. Fishers earning wages on a share basis are excluded from unemployment insurance coverage. Since most crew members are paid on a share system, their employment is not included in the standard statistical systems maintained by DOL. As a result, DOL cannot provide more current estimates of seafood harvesting employment in Southeast Alaska.)



SOURCE: Thomas, K. 1987. Alaska Seafood Industry Employment 1977-1984. Alaska Department of Labor, Research and Analysis Section. pp 11-29.

TABLE 3.1 WILDERNESS/NON-WILDERNESS DISTRIBUTION OF TONGASS NATIONAL FOREST FISHERIES ENHANCEMENT PROJECTS COMPLETED DURING THE PERIOD 1980-1989.

Enhancement Activity (No. of Projects)	Estimated Outputs (Thousand of Pounds of Fish per year)	Ex-Vessel Value (Thousand of Dollar per year)
Wilderness		
- Fishway (1)	20.7	22.7
- Fish passage improvement (1)	41.7	43.4
- Lake fertilization (2)	380.0	406.6
- Lake stocking (4)	1,242.0	1,258.4
- Debris removal (2)	NA	NA
- Fish weir (Egg take) (1)	NA	NA
- Fish weir (Research) (2)	NA	NA
Subtotal (13)	1,684.4	1,731.1
Non-Wilderness		
- Fishways (24)	3,841.2	3,144.1
- Fish passage improvement (4)	21.8	8.6
- Lake fertilization (3)	4,171.0	3,325.2
- Fish stocking (22)	484.7	157.5
- Spawning channels (5)	329.4	270.0
- Rearing ponds (7)	16.3	13.4
- Debris removal (barrier) (8)	76.0	62.0
- Large woody debris management (15)	81.6	66.9
- Incubation boxes (3)	833.9	683.8
Subtotal (91)	9,855.9	7,731.5
Total (104)	11,540.3	9,462.6

NA = Estimates are Not Available

Note: Salmon production based on full utilization of habitat capability. The time it will take to reach full production varies with species and fisheries management strategies regulating the fish stocks returning to the projects.

Ex-vessel values are gross receipts to commercial fishers (also available to sport and subsistence fishers) and are derived from *Alaska Catch and Production Commercial Fisheries Statistics*, Statistical Leaflet Series; 1980-88 and FINFISH report to the Board of Fisheries, Regional Information Report No. 1J90-02, Alaska Department of Fish and Game, P.O. Box 3-2000, Juneau, Alaska 99802.

SOURCE: USDA - Forest Service, Alaska Region

Table 3.2 FISHERIES ENHANCEMENT PROJECT INVENTORY FOR TONGASS NATIONAL FOREST WILDERNESS AREAS

Russell Fiord Wilderness
- Situk and Mountain Lakes - Proposed stream habitat improvement.

Admiralty Island National Monument Wilderness
- Florence Creek - Proposed fish passage improvement and brood stock enhancement.
- Fishery Creek - Proposed fish passage improvement and brood stock enhancement.

West Chichagof-Yacobi Wilderness
- Goulding River - Proposed fish passage improvement and brood stock development.
- Goon Dip River - Proposed fish passage improvement and brood stock development.
- Falls Creek - Proposed fish passage improvement and brood stock development.
- Value Comparison Unit (VCU) 265 - Proposed lake stocking of salmon.
- Suloia Lake - Proposed lake stocking for sportfish purposes.

South Baranof Wilderness
- VCU 333 - Proposed lake stocking of salmon.
- Benzeman Lake - Proposed fertilization.
- Lake Ekaterina - Proposed fertilization.
- Ekaterina Creek - Proposed fish passage improvement.

Tebenkof Bay Wilderness
- Wolf Creek - Proposed fish passage improvement.

South Prince of Wales Wilderness
- Brownson Bay - Proposed fish passage improvement at falls.
- Kalkus Lake - Proposed fish passage improvement.

Misty Fiords National Monument Wilderness
- Badger Lake - Proposed lake fertilization.
- Hugh Smith Lake - Lake stocking of sockeye salmon.
- Manzanita Creek - Proposed fish passage improvement.
- Dicks Creek - Proposed fish passage improvement.
- Ella Creek - Proposed fish passage improvement.
- Red Creek - Proposed fish passage improvement.
- Sikes Creek - Proposed fish passage improvement.
- Choca Creek - Proposed fish passage improvement.

THE EFFECTS OF WILDERNESS ON THE TOURISM INDUSTRY

Examination of these impacts is difficult due to the inability to clearly separate the effects of wilderness designation from the effects of approximately 11 million acres of unroaded backcountry.

Since the passage of ANILCA, the tourism industry has grown in Southeast Alaska. The growth is a result of marketing techniques emphasizing the natural setting of the area. During this period a number of businesses directly dependent on the Tongass National Forest for their operations have been established or expanded. For example, in 1980, the year ANILCA was enacted, there were 17 providers authorized to operate within National Forest System lands in Southeast Alaska. This number has grown since that time to 60.

In their effects on local communities, it is difficult to distinguish between expenditures based on tourism versus resident recreation. Clearly, however, the number of visitors to Southeast Alaska have grown and the level of recreation activity of Southeast residents has expanded. In combination, the accomodation of tourists and residents recreating in Southeast Alaska has expanded the number of direct and indirect jobs and income in the economy of Southeast Alaska.

Little factual data is known about the effects of wilderness on the tourism industry, however, some tentative conclusions may be drawn from the data that is available.

The majority of visitors are drawn to Alaska by the history and mystique of the "Last Frontier." Data also indicate that visitor anticipation is heightened by the opportunity to view unspoiled scenery and a variety of aquatic and terrestrial wildlife in their natural habitat. To many, Alaska is a "wilderness." The majority of visitors are unfamiliar with the nuances between a Congressionally-designated wilderness and a non-designated primitive unroaded outdoor recreation setting.

The tourism industry markets the attributes which attract customers. Wilderness is marketed along with scenery, wildlife, and fishing opportunities. Congressionally-designated wildernesses are marketed where there is name recognition, such as Misty Fiords National Monument Wilderness, Admiralty Island National Monument Wilderness, and Tracy Arm-Fords Terror Wilderness. Due to the type of package tours that form a large percentage of marketing emphasis, it is difficult to separate the impact of the wilderness components of the tours. For example, a package may include cruiseship sailing of the Inside Passage where both wilderness and non-wilderness backcountry are viewed; flight-seeing of Misty Fiords National Monument Wilderness, helicopter flight for a backcountry tour of the non-wilderness Juneau Icefield, dinner at a lodge located in non-wilderness after a small tour boat trip to the Tracy Arm-Fords Terror Wilderness, and a tour of the National Parks in Glacier Bay or Skagway. No one has determined how much designated wilderness actually influenced the visitor.

Whether the destination is wilderness or some other destination for a similar opportunity, the role of a formal designation has not been determined. In a 1985 Statewide overview of nine Southeast Alaska attractions visited, designated wilderness ranked seventh and eighth. The fact that two of the fourteen designated wildernesses made this attraction list would indicate that, at least for those two units, there was a positive effect on the tourism industry. Whether this effect can be attributed to designation or marketing a recognized name is not known. Provider opinion indicates that wilderness has a positive affect on their business. Statistical studies are needed to validate this opinion.

The persistent demand for the consumptive and non-consumptive use of the natural beauty, wildlife, and fish, appears to require some level of the enduring resource of wilderness within National Forests in Alaska to sustain the tourism industry.

A more complete picture of tourism trends in Southeast Alaska is provided in Figures 3.6 and 3.7. In general, the figures indicate that visitation to Southeast Alaska has increased throughout the 1980's. Cruise ship traffic has grown the fastest. Cruise ship passengers are clearly contributors to the tourism industry. Ferry traffic has increased also. Obviously, the ferry and airline data include business and personal travel which are not oriented to recreation or tourism. Still, the data are indicative because surveys of passengers arriving by ferry and plane show that many people travelling in Southeast Alaska for business or personal reasons also pursue leisure activities while in the area. Flight seeing is a growing recreational pursuit in Southeast Alaska. Data on passengers taking scenic flights in Misty Fiords and Ketchikan area confirm the trend and show the growing interest in observing National Monuments and wilderness areas from the air.

FIGURE 3.6 CRUISESHIP AND AIRLINE TRAFFIC TRENDS, 1981-1989.

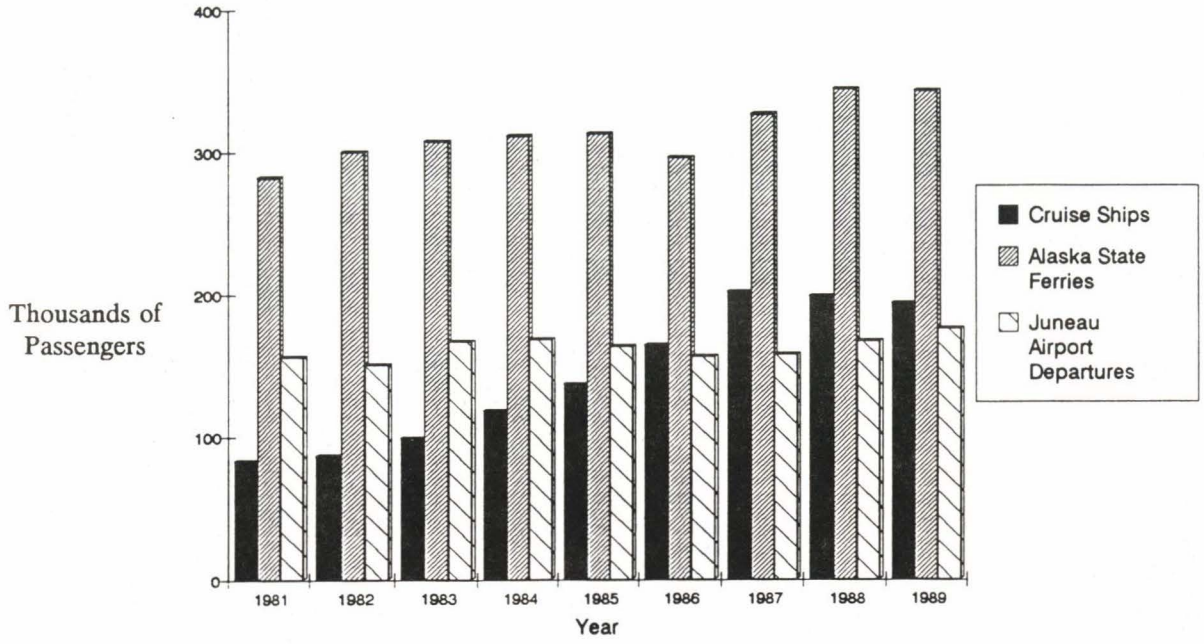
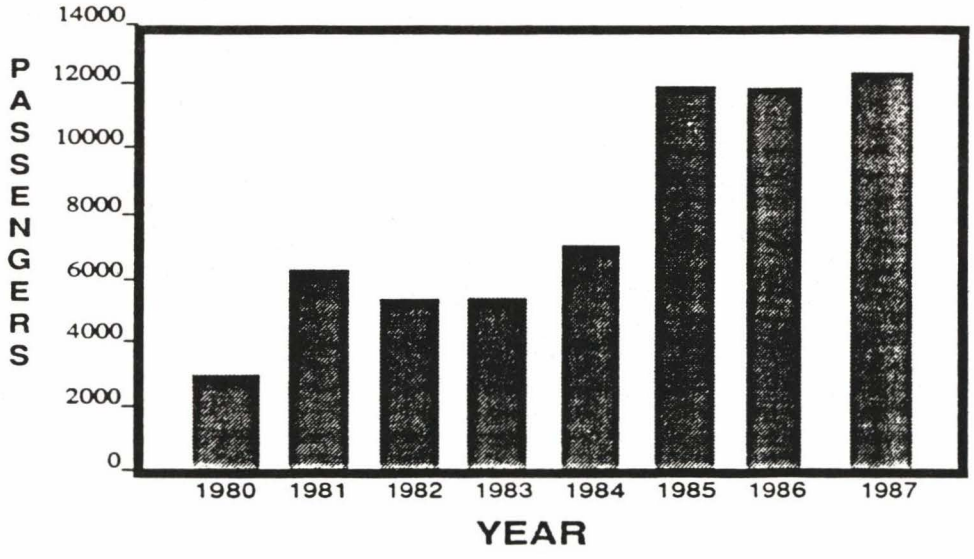


FIGURE 3.7 SCENIC FLIGHT PASSENGER NUMBERS IN THE MISTY FIORDS AND KETCHIKAN AREA.



Source: USDA Forest Service and Cruise Line Agencies of Alaska, Alaska Marine Highway Traffic reports, Juneau Airport Manager's office.

Fisheries enhancement is an important program on the Tongass National Forest. Since 1980, 104 cooperative fisheries enhancement projects have been completed and are expected to produce 11.5 million pounds of new salmon for Southeast Alaska's fisheries.

CHAPTER 4

MEASURES INSTITUTED BY THE FOREST SERVICE TO PROTECT WILDLIFE AND FISHERIES IN THE TONGASS NATIONAL FOREST

This chapter describes the development and current implementation of protection policies for fish and wildlife resources on the Tongass National Forest. A summary is presented of ongoing research and management programs concerning habitat relationships and fish and wildlife use.

This section summarizes measures taken by the Forest Service to provide for protection of fish and wildlife resources, and to accomplish wildlife and fisheries management objectives on the Tongass National Forest. Over 400 species of wildlife, fish, and shellfish use the aquatic and terrestrial habitats of the Tongass. These species provide many opportunities for consumptive and nonconsumptive use by the public, including commercial, sport and subsistence hunting and fishing, along with photographing and viewing activities. Some wildlife species found in abundance on the Tongass (brown bear, bald eagle) are Federally classified as threatened or endangered in other parts of the United States.

To meet the diverse demands for wildlife and fish resources, the Tongass National Forest is managed in a manner that maintains quality habitat for all species. Management practices emphasize the special habitat needs of deer, eagles, anadromous fish, and other high interest species; provides for diverse habitats; and considers the variety of wildlife and fish resources.

WILDLIFE AND FISH HABITAT MANAGEMENT

Management of wildlife and fish habitat in the Tongass National Forest is based on direction found in the Tongass Land Management Plan and ANILCA. For wildlife, this direction results in management prescriptions that guide forest management practices affecting wildlife habitat. Where timber harvest is planned, wildlife prescriptions may include size, shape, dispersal of cutting units, silvicultural systems, spacing standard for thinning projects in second growth stands, and multiple entries into stands during the 100-year rotation. Prescriptions in fish habitat management units in timber sales areas may include road and harvest location, location of bridges and culverts requiring fish passage, time limitation for road and bridge construction, and identification of appropriate sites for stream crossings. Other measures may be required to minimize sediment entry into the stream channel, protect temperature-sensitive streams, manage streamside vegetation to maintain the continued long-term introduction of instream large woody debris, and special provisions for habitat enhancement.

LAND MANAGEMENT PLANNING

The current Forest Plan placed 40 percent of identified high-value wildlife habitat areas of the Tongass under recommended wilderness or primitive, nonmotorized management which maintains existing wildland characteristics. The remaining 60 percent of the high-value habitat areas are subject to varying degrees of modification from timber harvest or other resource development. Some wildlife species benefit by maintaining the existing habitat conditions. The Forest Service continues to work cooperatively with other Federal and State agencies to insure that new research findings are implemented through site specific prescriptions in project plans. Proper project planning and site specific mitigation measures are designed to minimize adverse effects of planned habitat modification activities.

An illustration of how land use designations may affect wildlife habitat is shown in figure 4.1. This figure compares delinated deer winter habitat[1] on the Tongass National Forest at the time of Forest Plan implementation (1979), in 1989, and that projected to remain unharvested at the end of the planned rotation (2079). The figure is developed based on volume class information of timber stands in existance at the time the Forest Plan was developed. As discussed below, in areas where existing old-growth stands are converted to second growth, other characteristics besides volume class become important in managing the habitat.

As shown in figure 4.1, of the total 4,146,400 acres of deer winter habitat identified on the entire Tongass National Forest (including areas now designated Wilderness) in 1979, about 2,873,300 acres (69 percent) are estimated to remain unharvested at the end of the timber harvest rotation in 2079. About 3 percent (79,800 acres) of delinated deer winter habitat has been harvested to date from that portion of the Forest currently available for timber harvest. Harvest has included 6 percent (38,000 acres) of the winter habitat located in timber stands of greater than 30,000 board feet per acre.

During the development of the Forest Plan the otherwise available timber base was reduced by 273,000 acres of commercial forest land. These acres were to provide for management prescriptions associated with habitat management objectives. To date, almost 150,000 acres of habitat have been retained through this Forest Plan provision. In addition, there are another 244,000 acres of commercial forest land managed under an extended timber harvest rotation of up to 200 years. The extended rotation provisions were designed to meet visual quality objectives and have secondary benefits for wildlife and fisheries resources.

It is important to note that these projections are based on the current direction in the Forest Plan. The current effort to revise the Forest Plan may change these estimates. Growth in second-growth stands will result in more 30,000+/acre stands in the future than existed in 1979. Since figure 4.1 is designed to show the acreage of deer winter range with old-growth characteristics, new second-growth stands were not included in the display. From a wildlife perspective, as more second-growth stands begin to mature, the currently cited volume class characteristics of timber stands will not be as good a measure of habitat capability as they are for old-growth stands. The habitat characteristics most important to some of the species on the Tongass relate more to characteristics of an older forest canopy which allows interception of snow while allowing light to penetrate to the forest floor; slope, elevation, and aspect to the sun; and, soils favorable to the growth of browse. The timber stands that best provide the forest

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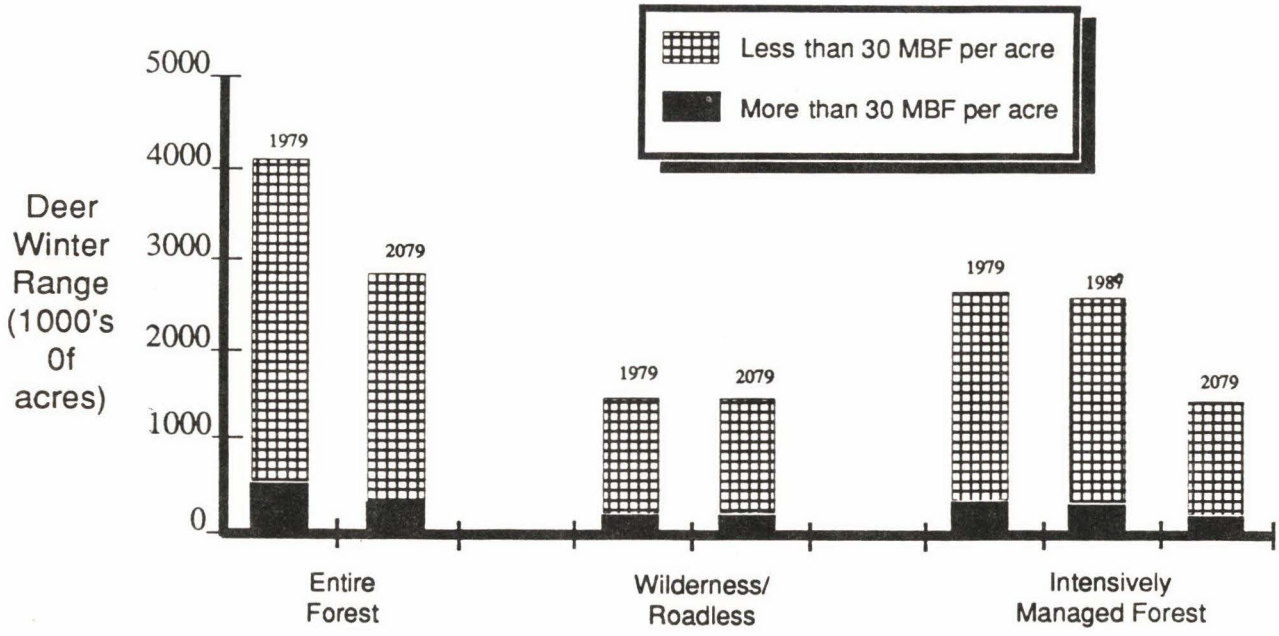
[1] As used in the development of the Forest Plan, key deer winter habitat is included in the area from the beach fringe to 500 feet elevation or generally one-fourth mile inland from the shoreline. Studies which have been completed since development of the Plan suggests that the definition used in the Forest Plan is too narrow in scope. The Forest Service and the Alaska Department of Fish and Game are cooperatively working toward establishing a new definition for use in the revised Forest Plan.

canopy characteristics are the Forest's higher volume old growth stands. The Forest Service and the Alaska Department of Fish and Game are working together to reach a common definition of wildlife habitat needs. This definition will be incorporated into the revision of the Tongass Land Management Plan to insure that the Plan's standards and guidelines reflect the best available information. The Forest Service is conducting research and implementing demonstration plots to determine whether favorable habitat conditions found in higher volume old-growth stands can be provided in second-growth stands. While the Forest Service is hopeful that the results will be favorable, it will be many years before the current research is finished.

FIGURE 4.1 DISTRIBUTION OF OLD-GROWTH DEER WINTER RANGE ON THE TONGASS NATIONAL FOREST, 1979-2079.



Source: USDA Forest Service, Alaska Region

The Tongass Land Management Plan is in the process of being revised. Actions discussed under "Cooperative Activities" and "Wildlife and Fish Habitat Relationships" are particularly important to the revision effort.

COOPERATIVE AGREEMENTS

The Alaska Department of Fish and Game and the Alaska Region of the Forest Service are working cooperatively to determine desired population objectives for certain wildlife species in Southeast Alaska. Preliminary population objectives for moose have been prepared for public review. Objectives for deer, brown bear and important subsistence species are in process. Once identified, these objectives will serve as evaluation and/or decision criteria in planning habitat strategies on the Tongass National Forest.

The USDA Forest Service, the Alaska Department of Fish and Game, the USDI Fish and Wildlife Service, and the USDC National Marine Fisheries Service have developed a tentative list of management indicator species for use in the revision of the Tongass Land Management Plan. Evaluations and recommendations for the tentative listing were published in 1986 (Alaska Region Technology Publication No. R10-TP-2).

Interagency coordination in research and management activities is contributing to the resolution of wildlife and fisheries management concerns. As a result, improved fish habitat management standards and guidelines for the maintenance and enhancement of fish habitat have been incorporated into the *Alaska Region Aquatic Habitat Management Handbook* (FSH 2609.24). Standing interagency groups review, coordinate, and recommend research to develop methods to minimize or eliminate any adverse effects of timber and other resource development activities on wildlife and fisheries. Consultation with representatives of other agencies is often used during planning and management activities to ensure that adequate coordination occurs, and that concerns of the consulting agencies are considered.

The Forest Service is working with the Alaska Department of Environmental Conservation to implement the requirements of the Clean Water Act, as amended. The Forest Service worked closely with the State in development of its nonpoint pollution control strategy and has completed the Alaska Region Soil and Water Conservation Handbook. The Forest Service and State are moving toward certification of this handbook as well as providing "designated management agency status" to the Forest Service and its water quality management programs. The State revised its State Forest Practices Act and the Forest Service is cooperating in development of implementing regulations. Other actions include: establishment of a special budget line item for the improvement of existing terminal transfer facilities to bring the sites into compliance with the new standards and completion of stream channel type inventories in association with the Tongass Land Management Plan revision.

FISHERIES ENHANCEMENT

As previously discussed, fisheries enhancement is an important program on the Tongass National Forest. Since 1980, 104 cooperative fisheries enhancement projects have been completed which are expected to produce annually approximately 11.5 million pounds of "new" salmon for Southeast Alaska's fisheries (Table 4.1). The Sikes Act authority is providing an essential linkage with the Alaska Department of Fish and Game in the implementation of the fisheries enhancement program.

SECOND-GROWTH MANAGEMENT

Enhancing wildlife and fish habitat carrying capacity in second-growth hemlock and spruce forests is an objective on the Tongass National Forest. To meet this objective, a Second-Growth Management Program has been established to develop and demonstrate silvicultural treatments that have the potential of benefitting in an integrated manner, timber, wildlife, and fish production throughout Southeast Alaska.

TABLE 4.1 TONGASS NATIONAL FOREST COOPERATIVE FISHERIES ENHANCEMENT PROJECTS COMPLETED BETWEEN 1980-1989.

Enhancement Activity (No. of Projects)[1]	Estimated Production[2] (Thousand of Pounds of Fish per year)	Ex-Vessel Value[3] (Thousand of Dollar per year)	Federal Cost[4] (Thousands of Dollars per year)	Cooperator Cost[5] (Thousands of Dollars per year)
Fishways (25)	3,861.9	3,166.8	3,353.8	205.0[6]
Falls modification (5)	63.5	52.0	92.0	0.0
Spawning channel (5)	329.4	270.0	365.5	85.0
Debris removal (10)	76.0	62.0	19.0	0.0
Lake fertilization (5)	4,551.0	3,731.8	1,200.7	1,557.0
Lake stocking[7] (8)	1,242.0	1,018.4	521.1	1,170.3
Stream stocking[7](18)	484.7	397.5	153.6	223.0
Rearing pond (7)	16.3	13.4	86.6	0.0
Incubation Boxes (3)	833.9	683.8	53.0	105.2
Large Wood Debris Management (15)	81.6	66.9	564.6	30.0
Fish weir (3)	NA	NA	0.0	NA
Total (104)	11,540.3	9,462.6	6,409.9	3,375.5

NA = Estimates are Not Available

[1] The project totals represent the number of activities completed at different locations. Repetitive annual investments at the same site (i.e. fertilizer applied to each lake annually) are not shown, although the costs of the repetitive treatments have been included in the cost totals.

[2] Estimated salmon production (available for harvest) based on full utilization of habitat capability. The time it will take to reach full production varies with the species and fisheries management strategies regulating the fish stocks returning to the projects.

[3] Ex-vessel values are the gross receipts to commercial fishers (also available to sport and subsistence fishers) and are derived from *Alaska Catch and Production Commercial Fisheries Statistics*, Statistical Leaflet Series; 1980-88 and FINFISH report to the Board of Fisheries, Regional Information Report No. 1J90-02, Alaska Department of Fish and Game, P.O. Box 3-2000, Juneau, AK 99802.

[4] Costs shown in the table are direct project costs (i.e., construction) and do not include indirect costs such as program planning.

[5] Combined investments of the Alaska Department of Fish and Game and the Regional Aquaculture Associations. Cooperative investment information for the majority of the projects involving these agencies was not available.

[6] Construction funds only. Alaska Department of Fish and Game salmon broodstock development costs associated with some fishway projects were not available.

[7] For years 1988 and 1989, salmon fry stocked were not included in the lake stocking or stream stocking activity displays of "Estimated Production" and "Ex-vessel Value". Production and values resulting from the stockings were added to the "Estimated Production" and "Ex-vessel Value" sums for the activity which the stocking supported (i.e. either fishways or lake fertilization). Costs of stocking during 1988-89 are included in the stocking activity.

Source: USDA-Forest Service, Alaska Region

WILDLIFE AND FISH HABITAT RELATIONSHIPS

The Wildlife and Fish Habitat Relationships System provides for implementation of the current Forest Plan provisions for wildlife and fisheries. The habitat relationships are also valued in developing the management prescriptions for the revised Forest Plan. These prescriptions will guide the management activities on the Tongass for the next planning period when the revised Forest Plan is implemented. To date, accomplishments include (1) development of a Wildlife Habitat Relationships Data Base covering more than 400 species, (2) development of wildlife and fish habitat unit descriptions, (3) development of an Aquatic Habitat Management Handbook, and (4) development of an integrated stream classification system. Use of the inventory information and systems in project planning and implementation has begun. Improvement of the management of habitat relationships information which will be used to address wildlife and fisheries resource requirements in all planning and management decisions.

SENSITIVE SPECIES MANAGEMENT

An Alaska Region Sensitive Species List was approved by the Regional Forester in January 1990. This list identifies taxa for which population viability is a concern on, or adjacent to, the National Forests in the Alaska Region. Tongass species listed include: Osprey, Peale's Peregrine, Trumpeter Swan, Northern Pike, Fish Creek Chum Salmon, King Salmon River and Wheeler Creek King Salmon. Habitat management plans for these species are being prepared and will identify special management requirements for these species.

CHAPTER 5

SMALL BUSINESS TIMBER SALES PROGRAM

This chapter focuses on the Tongass National Forest Small Business (SBA) Set-Aside Timber Program. In 1977 the Forest Service increased the amount of timber set aside under the Small Business Timber Program to promote opportunities for small businesses in the Alaska timber industry. The role of small firms in the Southeast Alaska timber industry and the degree of competition for National Forest timber since ANILCA are examined. Finally, estimates are made of the impacts of the Federal Timber Contract Payment Modification Act on short-term timber sales in Alaska.

The existing Tongass National Forest timber sales program is divided into two components: timber sales purchased under two, 50-year long-term contracts with the Ketchikan Pulp and Alaska Pulp companies and an annual program of short-term sales[1]. By agreement with the Small Business Administration (SBA), the Set-Aside program was modified in 1977 as part of the short-term timber sales program. The program was changed to encourage the purchase of Tongass National Forest timber by smaller firms. Since 1980 an average of about 95 MMBF of timber has been offered annually through the SBA program. The SBA volume offered represents an average of 66 percent of all short-term timber sales offered on the Tongass.

The SBA set-aside program gives small businesses the preferential right to bid on sales, free of competition from large companies. Small businesses are defined as those with no more than 500 employees. Small business purchasers are required to sell 50 percent of the volume to small businesses for processing.

The two pulp companies have purchased short-term timber sales in addition to the timber available under the long-term timber sales. However, since 1980, only seven short-term timber sales have been purchased by the pulp companies for a total of 83.7 MMBF, or about 6 percent of the total short-term timber volume sold since 1980. Essentially all short-term timber sales since 1981 have been purchased by qualified small business. Minor exceptions have been public utilities and other entities who have purchased timber in conjunction with non-timber projects, such as transmission corridors or aquaculture projects.

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[1] Short-term timber sales are sales requiring a firm to complete harvesting within a ten year period; normally within five years or less. Total Short Term Sale volume is shown in Figure 5.1.

Figure 5.1 National Forest Timber Available to Sawmills through the SBA Set-Aside Timber Sale Program, Fiscal Years 1981-1989

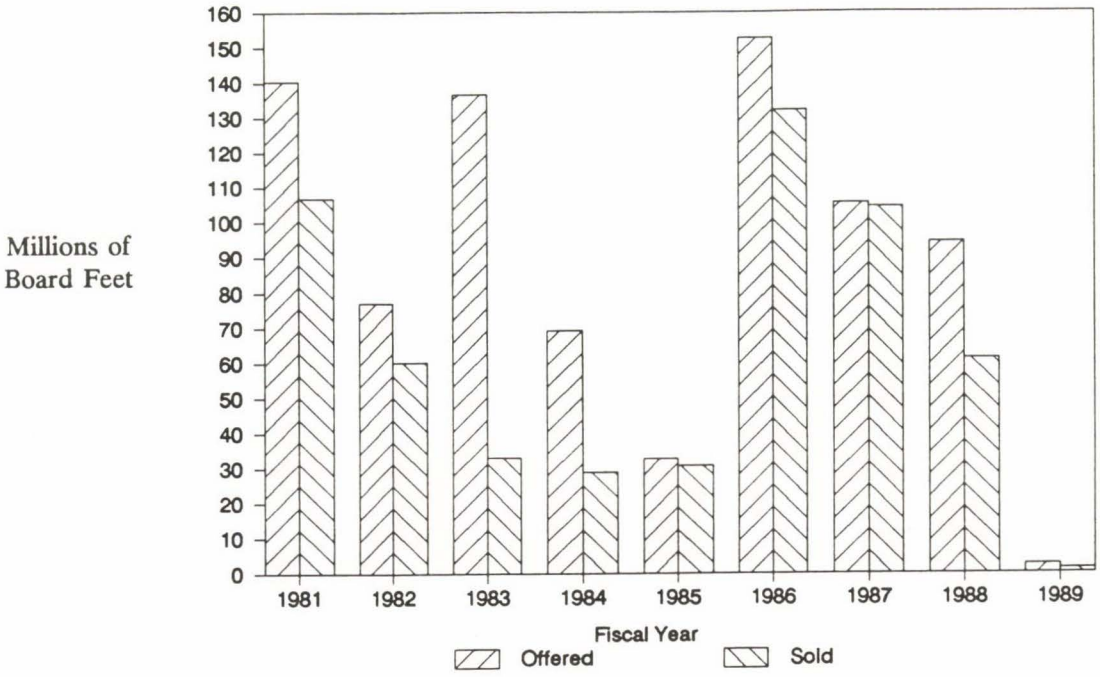
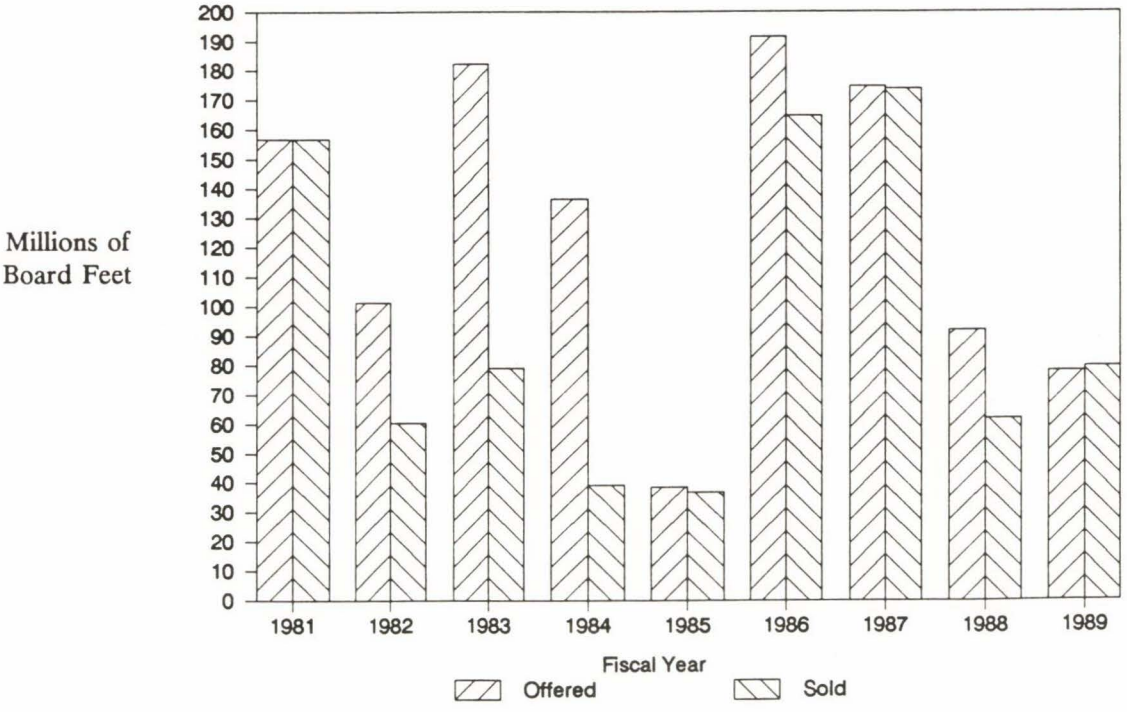


Figure 5.2 Total National Forest Timber Offered and Sold on a Short Term Basis, Fiscal Years 1981-1989.



RESTRUCTURING OF THE SOUTHEAST ALASKA TIMBER INDUSTRY

The *1985 Status of the Tongass National Forest Report* outlined the basic structural changes occurring in the Southeast Alaska timber industry. Improving timber markets have provided better times for all the Southeast Alaska industry. Today the status of the SBA segment of the timber industry is:

The Klawock Timber Alaska, Incorporated mill at Klawock has found the financing necessary to reopen and operated in 1989.

The Mitkof Lumber Company mill in Petersburg did not operate after 1987. The owners purchased the mill in Haines and started operations there as the Chilkoot Lumber Company in 1988. The Mitkof Lumber Company mill in Peterburg has been dismantled.

The mill in Yakutat has not operated since its construction. Its future remains uncertain.

Southcentral Timber Development Company of Anchorage purchased several timber sales in 1987. The company does not have a mill in Southeast Alaska at this time.

Finally, an active group of timber operators are taking advantage of the SBA timber sales, as well as other short-term timber sales. The average size of these operations is much smaller than in the past. In general this group of SBA operators buy smaller timber sales along existing roads, generally less than 2 MMBF.

Non-SBA mill operations in Southeast Alaska are the Annette Hemlock mill located at Metlakatla, a sawmill in Wrangell and the two pulp mills located in Ketchikan and Sitka. The Ketchikan Pulp Company has completed construction of a new sawmill at Ward Cove near it's pulp mill. The sawmill began operations in the spring of 1989.

PARTICIPATION IN THE SBA SET-ASIDE TIMBER PROGRAM

The number of bidders successfully participating in the SBA Set-Aside Program grew from one in 1978[2] to a high of 14 in 1983 and 1987. Table 4.1 shows the number of successful bidders and the number of new successful bidders (purchasing timber for the first time) under the SBA Set-Aside Program between 1980 and 1989.

Since 1980, qualified small businesses through the Set-Aside Program, have purchased 485.6 MMBF. About half of the timber sold is of sufficient quality to manufacture into cants or lumber, while the remaining timber is made into pulp.

Early in 1989, two manufacturers were determined to be other than a small business for the purpose of processing volume from set-aside sales. As a result, the Forest Service and the Small Business Administration agreed not to set-aside any more volume in fiscal year 1989 beyond what had already been set-aside at that time and to set-aside only 40 MMBF in fiscal year 1990 unless the demand warranted setting additional volume aside. Purchasers of previous set-aside sales that were due to expire prior July 1, 1990 were offered extensions to allow them time to find markets for their sales. Although SBA volume offered in fiscal year 1989 was low, SBA firms purchased 54 MMBF out of the 79 MMBF short-term volume offered.

[2] While the program was started in 1977, no sales were made that year.

TABLE 5.1 NUMBER OF SUCCESSFUL FIRMS BIDDING FOR SBA TIMBER SALES, 1980-1989

Fiscal Year	Number of Bidders Sucessfully Purchasing SBA Timber Salse [1]	Number of New Bidders Successfully Purchasing SBA Sales [2]
1980	3	1
1981	5	5
1982	13	9
1983	14	7
1984	8	4
1985	10	1
1986	12	2
1987	14	3
1988	13	4
1989	6	1

[1] Firms buying SBA Set-Aside Timber Sales.

[2] Firms purchasing SBA Set-Aside timber sales for the first time. Since it is not apparent whether some firms have simply just changed names or started several new operations, there may be some double counting.

TABLE 5.2 NUMBER OF SBA BIDDERS AND AVERAGE BID PRICE, FISCAL YEARS 1980-1989

Fiscal Year	Sales Offered	Sales Sold	Average Number of Bidders in SBA (with competition)[1]	Number of Single-bid SBA Sales (without competition)	Weighted Average Bid Price ($/MBF) 1987 Dollars
1980	7	7	2.5	3	222.21
1981	5	5	4.0	2	108.76
1982	27	20	2.5	16	33.74
1983	32	16	2.6	8	72.18
1984	16	12	2.3	8	34.03
1985	14	10	2.6	3	10.95
1986	28	16	2.3	5	16.61
1987	27	23	2.5	7	32.67
1988	32	23	2.7	16	67.13
1989	12	9	2.0	8	151.12

[1] SBA sales that sold and received two or more bids.

COMPETITION FOR SBA SET-ASIDE TIMBER SALES

Measuring competition for Tongass National Forest timber sales is difficult because of the small number of firms in Southeast Alaska and the influence of long-term timber sales. Table 5.2 contains some indicators of competition for SBA set-aside sales on the Tongass National Forest. Despite some variation in the numbers of timber sales sold, the number of bidders on sales with competition has stabilized.

THE FEDERAL TIMBER CONTRACT PAYMENT MODIFICATION ACT

The Federal Timber Contract Payment Modification Act was signed into law on October 16, 1984. The objective of the Act was to provide some relief to National Forest timber purchasers whose bids on sales in a period of high demand were not financially viable after the world-wide downturn in the timber market. These purchasers faced large financial losses. Of special importance to Alaska is Section 4 of the Act, enabling purchasers of short-term timber sales in Alaska to receive emergency rate redeterminations. Prior to the Act, rate redeterminations were not available for timber sale contracts of less than seven years in length. Qualifying short-term timber purchasers were provided opportunities to have the original stumpage rates reappraised, thereby lowering the amount owed to the government. Only those sales sold between January 1, 1974 and July 31, 1985, qualified for the emergency rate redeterminations. Revised rates applied to volume harvested and scaled between January 1, 1981, and October 15, 1989.

Fifty-two timber purchasers requested the rate redeterminations, affecting 152 timber sales. Qualified purchasers requested redeterminations on 558 MMBF. The Forest Service determined that about 563 MMBF of timber qualified for rate redetermination. Refunds have been made to purchasers of over 2.9 million dollars for current and past harvests. Estimated total value of affected contracts was approximately $54.5 million prior to the Act if all volume were harvested. Total value of the affected contracts as a result of the Act was approximately $1.2 million. The difference of $53.3 million represents revenues foregone.

CHAPTER 6

RESEARCH ON MANAGEMENT ALTERNATIVES FOR TIMBER AND RELATED RESOURCES

The research program conducted by the USDA Forest Service Pacific Northwest Research Station in Southeast Alaska is a composite of basic and applied research and development. The objective is to serve society by improving understanding, use, and management of natural resources. It creates knowledge of biological, physical, ecological, social, and economic relationships needed to manage and protect the Tongass National Forest as well as lands of other ownerships and use in the unique forests of the Alexander Archipelago. The information is made relevant and readily available to resource specialists, managers, scientists, and the public. Use of improved information and technology is advocated. The research program provides impartial information for the public's understanding and evaluation of issues related to natural resources.

The research program in Southeast Alaska is funded in part by funds appropriated for Forest Service Research and allocated to the Pacific Northwest Research Station, and in part by funds appropriated for management of the Tongass National Forest. The research program has and will continue to use a multi-disciplinary approach that focuses on timber, wildlife, fisheries, and related resource problems. Much has been accomplished, a variety of research efforts are underway, and there are plans for the future. This chapter focuses on issues and changes affecting the research program and provides some illustrations of accomplishments, current work, and plans for the future.

ISSUES AND TRENDS

The Tongass National Forest sits at a global crossroads in terms of the passage of a century and the interplay of world politics, resource issues, and economic forces. The research program attempts to be responsive to resource issues developing from the following:

- The need to find ways to maintain accord among economic classes and cultures, without exploiting natural resources.

- The increasing alteration of regional and global environments by human activity.
- Continued growth of the world economy, which presses demand for wood products upward.
- Growing participation by a wider segment of the public in natural resource decisions.
- Global atmospheric changes that may be irreversible and which may, through climatic changes, affect nations' relative economic roles.
- Increasing value of amenities on private lands.
- Growing interest in allocation of public and private lands, especially for ecosystem protection.
- The need for increased productivity of lands still identified for commodity production.
- Extinction and endangerment of wildlife and plant species and reduced diversity in remaining ecosystems.
- Increasing human pressure on wildlands with impacts on all commodity and non-commodity land uses.
- Increasing social, economic, and political consequences of peoples differing interests at the urban-rural interface.
- Rapidly rising values of commodity resources.
- A growing number of fragile rural economies facing additional threats as resource allocations change..

In particular, contemporary issues and trends in Southeast Alaska include:

- A growing need to integrate ecosystem research findings with those of intensive culture.
- Demand, from more publics, for ecological and economic knowledge about resources and their tradeoffs.
- Increasing concern about saving particular natural elements, such as old-growth forests, rivers, and particular watersheds.
- Conflicts among non-commodity forest uses, such as sport hunting versus subsistence hunting versus appreciative wildlife uses.
- Declining harvests on public as well as private lands.
- Continuing conflicts among uses and preservation of Southeast Alaska forests.
- Pressures for additional wilderness, as well as less traditional constraints on various forest uses.
- Disagreement on basic technical matters including timber growth and supplies, game-animal management, riparian management, and even economic principles pertinent to long-term forest management.

- A growing need to provide research which contrasts the differences between management of National Forests in Southeast Alaska and changes in land use occurring in the tropics.

The research program is looking at problems less on a local level and more on regional, national, and international levels. The need to conduct research in an integrated, multi-disciplinary format is increasing.

The audiences for the research programs are in flux. Expectations are:

- Expansion of client base. Society in general and public-interest groups will be direct clients for research and development products.

- Policy makers, regulators, and scientists in other disciplines and institutions increasingly need basic ecological information. Resource managers will continue as major clients, but more of their future problems will be defined by public concerns than in the past and will reflect social, cultural, and demographic changes in society. All of our clients increasingly depend on unbiased scientific information to reduce conflicts and to increase the value of resources.

- Shift in public values. The public is undergoing a revolutionary change in the values placed on ecosystems and in what is expected from public and private wildlands. The public will increasingly demand a variety of resource outputs and values from forests beyond commodity and economic values.

- Increasing and conflicting demands. Demand for the variety of values from public and private forest lands increasingly exceeds supply, and the inevitable result is conflict and adversity between users and resources.

ACCOMPLISHMENTS, CURRENT WORK, AND FUTURE PLANS

RECREATION

In Southeast Alaska recreation opportunities and the tourist industry interact differently than is normally found on or near most other National Forests. Tourists arrive in Southeast mainly (60 percent or more) by cruiseship and by air (11 percent) rather than by automobile. As a result, they are more dependent upon tour packages and special services and less able to engage in "do it yourself" trips.

Another difference is the size and configuration of the Tongass National Forest. The marine-island character of the Forest, the great scale of the landscape, isolated communities, and lack of conventional transportation result in a pattern of relatively short day trips to the Forest from the communities and a great dependence on the communities for services and lodging, particularly for tourists. The limitations on transportation modes creates a pattern of "home ranges" adjacent to communities that become important to both tourists and residents seeking recreation opportunities.

The distance from Alaska to the lower 48 States and other parts of the world (with the exception of Canada) and the associated travel cost is a major factor behind the clear difference between resident recreationists and the visitors from outside Southeast. Visitors are generally older, often purchase package tours, utilize many relatively expensive services, and spend relatively little time in remote settings while in Southeast Alaska. They travel primarily by ship and by air. This is in contrast with most places in the rest of the United States where the two groups are often much less distinctive (primarily due to the ease and availability of motor vehicle travel).

Because most of Southeast Alaska is undeveloped, the Tongass National Forest is primarily used for dispersed recreation activities such as viewing scenery and wildlife, boating, fishing, hiking, beach combing and hunting. The exceptions are the concentrated use areas and facilities, such as visitor centers and campgrounds, located in the vicinity of the communities.

Because recreation use is so dependent on access, the pattern of use is associated with known protected boat anchorages, boat landings and aircraft landing sites, and the limited road systems. This situation makes it possible to identify specific "recreation places" with specific setting attributes that attract use. These places require special consideration in both Forest land management planning and resource allocation decisions as well as specific project planning. It is these specific recreation places and the quality of the settings associated with them that constitute the effective supply of recreation opportunities throughout the Tongass National Forest.

As a part of the revision of the Tongass Forest Plan approximately 1,400 recreation places, aggregating approximately 5 million acres, have been inventoried. This amounts to 29 percent of the total National Forest. About 18 percent of the inventoried recreation places are in designated wildernesses; and while these aggregate to nearly 35 percent of the total acreage of recreation places, only a few lie within the home ranges of communities. Over 70 percent of the recreation places (with 44 percent of the total acreage) are located in Forest lands allocated to timber harvest and other multiple use activities (LUDs IV and III). Most of these are located within community home ranges and used both by local residents and tourists visiting the communities.

Multitudes of rivers and streams may add new dimensions to the Nation's Wild and Scenic Rivers System. In addition, there are newly discovered wild caves with environments of unknown nature. The Region's recreation cabin system and interpretive program on the Marine Highway ferries are extremely popular and highly utilized by resident and visitor alike. And while the opportunity to hunt and observe a large variety of wildlife species is still readily available on the Tongass, an underlying concern among many outfitters and guides throughout Alaska is the diminishing of the primitive, uncrowded settings as more people visit and/or participate in wildland adventure activities.

Resident Recreation

Local residents of Southeast Alaska value highly the opportunities for remote, uncrowded wildland and marine outdoor recreation. Many residents spend much more time recreating out of doors than their counterparts in the Lower 48. The "home range" approach to providing recreation opportunities becomes very important as the cost of access to recreation opportunities and places increases as a barrier to participation. Comparatively, the **location** of available sites and places become more important. Outside of "lack of time" and "weather", the most significant "barrier" to participating in recreation activities cited by residents of Southeast Alaska is insufficient places *accessible* from their communities for dispersed recreation.

Since 1980 the supply of certain recreation opportunities in Southeast Alaska has increased in some places. Road systems have expanded, the number of Forest Service recreation cabins and other facilities has increased, and visitor services and tourism marketing have increased. The advent of the all-terrain vehicle (ATV) is playing an important role in how local residents view the construction and management of roads (i.e., there is a strong desire to allow continued use of ATVs for hunting and fishing). In some cases, supply-induced increases in participation have occurred. This appears to be the case on Prince of Wales and Mitkof Islands where road systems developed for timber harvesting purposes created an opportunity for road-related access to previously inaccessible recreation settings and an opportunity for recreation activities involving wheeled vehicles (something that was relatively rare in those parts of Southeast Alaska). Use increased, but total potential is determined more by the capacity of the ferry system and the size of the local communities than by the miles of road available.

Supply-induced participation changes have also been accompanied by additional demand for land areas (places) or facilities for a related activity. With increased opportunities for roaded access and activities on Mitkof and Prince of Wales Islands came the need for fisherman parking, small, lightly developed recreation vehicle campsites, picnic sites, trails to scenic attractions, and additional short access routes to cabin sites and previously inaccessible beaches.

Public scoping indicates a desire from many people to have more hiking trails and other dispersed recreation opportunities made available close to communities, this also is in concert with some of the local tourism strategies to provide additional activity opportunities near communities to entice the visitor to stay longer in a locale.

Scoping also highlights the concern that those recreation places within normal travel distances be protected from adverse change.

There is also, a part of the population in each of the communities that do not have the financial capability to travel beyond the range of the local road system or the limits of safe small boat access for outdoor recreation purposes, including fishing.

Tourism

During the summer of 1988 a comprehensive survey of visitors to Southeast Alaska was conducted to measure the economic impact of tourism on the region's economy (Southeast Alaska Pleasure Visitor Research Program, 1988). Among the major findings was that visitors (those arriving for other than work or business) spent about $74 million while in Southeast Alaska, establishing that tourism is Southeast Alaska's third largest "industry". Some of the insights about the tourist industry gained from that study are:

- Tourism visitors to Southeast rate their overall experience very highly, 6.3 on a scale of 1-7.
- Southeast drew an estimated 70 percent of the entire state's pleasure visitors in the summer of 1988.
- There were 34 percent more pleasure visitors in 1988 than in 1985.
- Pleasure visitors can be broken into two categories: "Package" and "Independent". Those on a pre-sold, pre-arranged trip are called package tour visitors. Independent visitors make their own arrangements and travel around Southeast on their own.
- 27 percent of all pleasure visitors were independents, stay about two days longer, and over the duration of their trip spends a little more money.
- 79 percent of independents enter Southeast by personal vehicle at the portals of Skagway, Haines, or Hyder or via the Alaska Marine Highway ferry system. The remaining 21 percent arrive via commercial airlines.
- 36 percent of the independents come from the Western U.S. including 16 percent from California. Twenty-four percent of the independent visitors come from Canada.
- Total independent visitors have increased about 20 percent since 1985.

  73 percent of the visitors bought full packages of transportation, accommodations and sightseeing. ~kage visitors increased 40 percent since 1985.

Independent visitors tend to make more direct use of the National Forest facilities than do visitors on package plans. Where road access to the Forest is available from local communities and/or there are attractive trail systems, independent travelers are more likely to explore and use the Forest more. Satisfying this segment of the tourist market appears to have the most possibility for developing cooperative planning and service strategies between the National Forest and the tourist industry.

Information Needed to Better Manage the Recreation Resource on the Tongass.

One of the most noticeable obstacles to comprehensive planning for recreation and wilderness management has been the dearth of reliable information concerning the use and value of the outdoor recreation resources found in Southeast (and all other parts) of Alaska. Better and up-to-date information needs ranging from simple accounting of existing use to indepth socioeconomic impacts of changing values and lifestyles is needed. The Alaska Public Survey conducted in the late 1970's is the most current information available; social and economic values undoubtedly have changed since that time.

Most reporting of recreation use in Alaska today does not separate visitors and residents, making it impossible to distinguish the effects or values of the two groups from existing data. The State, while maintaining reasonably good records about visiting tourists, has no similar studies about resident impacts, values, desires, needs, or the effect of tourism on resident recreation opportunities.

It seems apparent that a continuation of the Southeast Alaska Pleasure Visitor Research Program designed and conducted in 1988 is needed to track the trends of the recreation and tourism impacts on the Southeast economy.

Similarly, the Alaska Public Survey of residents should be updated and perhaps expanded upon to the same depth and specificity as the TRUCS study of subsistence use in Southeast. There are many indications that outdoor recreation opportunities and pursuits by residents are as highly valued and important to the overall lifestyle and social well-being as are subsistence activities. Such information is essential to the management of the recreation resource.

ANADROMOUS FISH HABITAT

Large Woody Debris

Living space is a primary limiting factor for juvenile salmonids in rearing or nursery streams. Large woody debris (LWD) in streams is an important component of this living space. Accumulation of large woody debris in streams is a naturally occurring process upon which the biological energy of the stream is based. Natural debris is important in providing rearing habitat for salmonids as well as a base for nutrients and food for invertebrates. Logging debris may not provide the same function as natural debris in a stream ecosystem because it is generally smaller in size, contains more floatable material, and occurs in more patchy concentrations. The riparian (streamside) zone is the primary source of the needed debris. Timber harvest along streams will affect the amount and type of material in the stream. Under natural conditions, large woody debris can enter a stream suddenly, through blowdown, bank erosion, and landslides, or slowly, from trees periodically falling into the stream channel as a result of mortality. In an old-growth forest, material in streams that gradually decomposes or washes out is constantly replaced, and this continual supply of debris maintains the stream habitat that is needed by fish and other organisms.

Research by the Juneau Forestry Sciences Laboratory during the past 5 years has demonstrated that the primary effects of large woody debris on stream channels are related to changes in streamflow patterns. Pools are formed by the stream scouring around and under logs; gravel and sediment are stored behind logs and

debris jams; undercut banks are created by water being deflected against stable banks. All of these features contribute to a variety of habitat types that are used by salmonids and the organisms they feed upon.

This initial large woody debris study has been completed, and has resulted in several scientific and popular publications. Of particular significance is the change in guidelines for forest management that has occurred in the Alaska Region of the USDA Forest Service. In the past, stream cleaning to remove debris was required as a part of every timber sale. Since the results of the research became known, the current practice is to leave most of the natural and logging-related large woody debris in the stream, unless it poses a barrier to fish migration. In this case, enough debris is removed to correct this problem, but enough is left in the stream channel to provide the necessary habitat for rearing fish. Each stream must be regarded as an individual case and the debris managed accordingly. This includes managing the riparian vegetation to provide a continuing source of material which will supply the needed debris. In some cases, additional woody debris (e.g. large logs, root wads, stumps) is added to streams.

Second-growth Forest Management

As portions of the old-growth forests along streams of Southeast Alaska are harvested, second-growth forests will have to supply many of the requirements of productive fish habitat. Many factors associated with the role of second-growth forests in providing these needs are not clearly understood. For example, how much time is required after logging for the new timber stands to be able to provide the large woody debris needed as habitat for rearing salmonids? Streamside timber has two primary roles in controlling the quality of habitat for juvenile and adult salmonids. The density of the streamside canopy regulates the amount of sunlight that reaches the stream and provides the energy base for primary production of algae and other aquatic vegetation; this primary production is necessary for the production of aquatic invertebrates that are the major food supply for juvenile salmonids. Streamside vegetation also provides the structure--large woody debris, root wads, and the habitat features that are associated with this structure, such as undercut banks and deep pools--that is a necessary component of fish habitat. Adult salmonids use this structure as hiding cover to escape predators; juveniles use the structure for protection and for the living space described in the preceding section.

In Fiscal Year 1987, the Juneau Forestry Sciences Laboratory initiated a study to determine the relative importance of energy and structure as fish habitat components. This study was conducted on several streams on Prince of Wales Island in Southeast Alaska. Several reaches of each study stream were manipulated to provide different amounts and kinds of structure, with sufficient repetition to satisfy statistical treatment of the data. The use of instream cover was evaluated by removing all natural instream cover from all habitat units and adding new instream cover in the form of brush bundles to half of the habitat units in each section. After the study streams were set up, the response of salmonids to the treatments was monitored at approximately 30-day intervals for the remainder of the summer in 1988 and 1989. Solar input into open and closed canopy was measured on two of the study streams. As would be expected, more light was measured in the open canopy sections. A relationship between pyranometer data, measured at a single location in each stream, and discrete solarimeter data, measured at each specific treatment site, will be defined to estimate solar input into open- and closed-canopy stream sections on a season-long basis. Allochthonous inputs were measured with leaf-litter traps randomly placed in open- and closed-canopy sections. More leaf litter fell in the closed- than in the open-canopy sections. Primary production was measured in two study streams using clay tile substrates placed in riffles in the open- and closed-canopy sections. Laboratory analysis has been completed for biomass accumulation and chlorophyll *a* production; statistical analysis of the data is currently in progress. Fish numbers did not differ between open- and closed-canopy sections in all study streams. Although the fish biomass data has not yet been completely analyzed statistically, there appears to be no response to canopy modification. Likewise, addition of brush bundles to the streams had no effect on the numbers of age-0 coho salmon present in the habitat units in summer. Coho salmon used all available space in the small streams whether bundles were present or not.

Upon completion of this initial study, we hope to be able to field-test the results on several different streams throughout Southeast Alaska to determine the degree to which the information can be extrapolated throughout the Region.

The results of this study will provide fishery and forest managers with information needed to develop guidelines for management of riparian vegetation and second-growth forests. The results of the large woody debris and second-growth forest management studies will provide much of the information needed to manage the timber resources of Southeast Alaska in a manner that will protect and enhance the habitats of salmonids.

WILDLIFE HABITAT

Ecology of Sitka Black-tailed Deer

Sitka black-tailed deer have been the focus-species for professional and public concern about wildlife habitat on the Tongass National Forest for at least the past 15 years. The concern stems from the importance of old-growth forest habitat in the ecology of the deer, the importance of deer in the subsistence economy of rural residents, and the value of deer as an ecological indicator of wildlife habitat in general (there are many good reasons why deer are a good "indicator species" on the Tongass). Many of the ideas about habitat quality and the effects of forest management on deer populations in Southeastern Alaska were based on studies of habitat selection. Although such studies are an important beginning in understanding the ecological relationships between an animal and its habitat, additional studies on the nutritional value and availability of forage by vegetation community and management practices also have been needed to truly understand the interactions between the animal and its habitat.

During the past nine years, the Forest Service deer research program has concentrated on testing the hypotheses derived from the earlier studies of habitat selection. Those tests have involved studies of plant chemistry and nutritional quality and experiments with captive deer in highly artificial, controlled situations. Much has been learned, and new implications for forest management have been derived. But the important remaining question is whether the models resulting from the separate, controlled experiments integrate the interactions between ecological factors in the same way they are integrated in the deer.

Current research involves a 3-year study of black-tailed deer in their natural forest environment. The study was designed to field-test the ideas derived from the separate, controlled-environment studies. Nine hypotheses about nutritional interactions between deer and their habitat are being tested with tame, but free-ranging deer on a 250 acre island near Wrangell, Alaska. The deer have been bottle-raised as fawns on the island and weaned onto the natural vegetation. They live without supplemental feed or other human assistance, but they are very habituated to humans and tolerate human observers at close range. This study will provide a field test of our understanding of the nutritional relationships between deer and their habitat and the factors determining habitat selection by individual deer and habitat quality for populations of deer. It will be completed in 1990 and will be the last major study of this 10-year research program on deer.

The preceding 9 years of research have produced over 30 publications in the scientific literature, a synthesis of those studies for forest managers, and a computer model for calculating carrying capacity of habitat for deer. Another 5 to 10 publications are either in preparation now or are expected to result from the current work.

Animal-Fruit Interactions

In 1989 a research ecologist was hired to begin a program of research on the role of animals (primarily vertebrates) as agents of dispersal for seeds of understory plants in the forests of Southeast Alaska. A disproportionately high number of understory species reproduce by berries in Southeast Alaska compared with other temperate forests. That, along with the natural disturbance regime of gap-phase succession (disturbance at the level of individual trees or small groups of trees), indicates that animal-fruit interactions may be an unusually important factor in the establishment and maintenance of understory vegetation in the region. The implications are community-wide and very important for designing optimal forest management prescriptions and plans. Studies beginning in 1990 will be the first of a 10-year research program on animal-fruit interactions.

Ecology of Riparian Ecosystems

Riparian ecosystems are very important from a conservation standpoint. They are the most species rich and productive communities on the landscape for animals. Interactions between the terrestrial and aquatic environments are especially important in riparian systems and have major implications for both fish (including salmon) and terrestrial species. Riparian ecosystems are currently very poorly understood in Southeast Alaska because most research has focused on the upland forest or the aquatic system itself. Riparian systems have recently come into public debate over buffer strips and streamside management especially in relation to salmon habitat.

Future research efforts in wildlife habitat research will emphasize developing a sound understanding of these important systems. Study site selection and preliminary pilot studies will begin in 1990 with a full 10-year research program beginning in 1991.

SUBSISTENCE

Information on the personal subsistence use of fish, wildlife and other wild renewable resources in Southeast Alaska was gathered by the Forest Service in a cooperative effort with the Alaska Department of Fish and Game and the University of Alaska Institute of Social and Economic Research. Data collection emphasized a systematic process for identifying natural resources used for personal consumption: amounts of fish, wildlife or plants used; nature of resource distribution and exchange; areas of highest productivity; and, relevant demographic characteristics. In addition, this study mapped important resource use areas. The information will be used for social impact assessment and to complete subsistence evaluations as required in Section 810 of ANILCA. A draft report will be available in 1990.

EROSION AND SEDIMENTATION

Southeast Alaska is characterized by naturally steep slopes, shallow soils and exceptionally high rainfall--all controlling components of unstable terrain. Because of high soil permeabilities, slope drainage is primarily by subsurface flow with little or no overland flow outside of established channels. During major storm periods, high soil moisture levels produce local areas of saturation resulting in frequent landslides. When overland flow does occur, the thick mat of forest vegetation is generally adequate to protect the mineral soil from surface erosion.

Under these conditions, surface erosion is minimal and is mostly restricted to bare mineral soil areas produced by stream bank cutting and catastrophic events such as landslides and windthrow. Soil mass movements, involving the rapid downslope movement of a mixture of soil, water, and organic debris, dominate as the principal natural process of erosion and sediment transport to stream channels. As timber harvesting

has continued to expand into this unstable terrain, the exposure of bare mineral soil and number and frequency of landslide processes has increased resulting in accelerated delivery of both sediment and large woody debris to anadromous fish streams.

Research at the Juneau Forestry Sciences Laboratory continues to develop and expand a critical body of knowledge relating to landslide processes, failure mechanics, and controlling variables, much of the knowledge useful on a west-wide basis. JFSL scientists and cooperators are also actively developing an understanding of the regional character and distribution of landslide processes including type, size, transport distances, and degree of damage to riparian zones produced in natural and logged areas in coastal Alaska. This information is currently being used to assess landslide risks from logging during timber sale planning and layouts at both the State and Federal levels and has been incorporated into the current revision of the Tongass Land Management Plan.

New research is directed toward developing a better understanding of variable interactions and long-term cumulative effects of streamflow, landslides, and surface erosion in the riparian zone. Major emphasis here is being placed on developing a better understanding of erosion, transportation, and deposition process linkages between hillslopes and stream channels and on movement and distribution of organic and inorganic debris through channel systems utilized by anadromous fish.

DEMAND AND SUPPLY OF FOREST PRODUCTS

Silviculture and ecology

Forest researchers in Southeast Alaska are conducting studies that are providing land managers with tools necessary for intensive management of timber resources including models of forest growth, stocking guidelines, volume equations, and site quality relationships. More basic ecological studies are also underway to provide an understanding of the dynamics of old-growth and how conifer regeneration and understory species develop in natural and managed stands. Studies of natural soil processes and how management actions affect long-term site productivity are also important parts of the program.

Intensive Management

Data from the permanent growth plots in southeast Alaska were summarized and used to develop new diameter growth and mortality sub models for the southeast Alaska prognosis growth model (SEAPROG). SEAPROG was developed to simulate the development of natural and managed stands and is used to make growth projections for the Tongass Land Management Plan revision.

Amount and growth of hemlock and spruce regeneration in unthinned and thinned stands has been analyzed so that projections can be made of how competitive this component will be to the development of overstory trees and understory vegetation in thinned stands.

New taper and volume equations have been developed for western redcedar and Alaska cedar, two very valuable species in coastal Alaska. Once tested they will be used by the Region to estimate cedar volumes in future sales. A Volume Estimator Handbook, a cooperative effort between the Washington office and other Forest Service work units, has also been completed.

Temporary plot data collected in the 1920's and 1930's and used to develop normal yield tables for western hemlock and Sitka spruce has been recompiled along with original data from the Pacific northwest. Comparisons are being made between these data sets to characterize north to south differences within the hemlock-spruce forest type.

Stem fluting of western hemlock is a serious problem in some areas of southeast Alaska. A pamphlet on this subject was prepared and distributed along with recommendations of how to manage this potential problem until more information becomes available. Degree of stem fluting has also been measured on all permanent growth plots in southeast Alaska as a baseline for future studies.

Crown competition factors were developed for western hemlock and Sitka spruce along the North Pacific coast based upon data collected from open grown trees. It was concluded that crown width-diameter relations for hemlock and spruce were independent of location and site index along the coast.

Ecology of Natural and Managed Stands

Several manuscripts have been submitted to journals covering long-term response of understory vegetation to stand density, early establishment and vegetative growth of understory species, structure and composition of old-growth forests, and old growth forest dynamics. Presentations have also made on ecology of temperate rain-forests, techniques for measuring light penetration through conifer forest canopies, and dynamics of old-growth temperate rain-forests.

An intensive microclimatic instrumentation system has been implemented and field tested and a meteorologic network established and maintained at 13 sites in the Juneau area. Studies are also underway on controlled burn sites in southeast Alaska to evaluate decomposition rates, regeneration, growth, nutrient values, and use by deer.

Reseach Natural Area workshops were conducted and input from diverse agencies and disciplines synthesized into a final report, along with recommendations for 30 new natural areas. Data has been collected on several proposed RNAs, in cooperation with the University of Alaska and the Regional ecology program, to document distributions of rare plant.

Research on understory ecology and systems ecology was combined with wildlife habitat information to develop a framework for studies on biodiversity. Reproductive characteristics of important deer forage plants and an understanding of why understory plants donot maintain viable populations beneath dense conifer canopies was studied. Microclimatic variables (solar radiation, temperature) were determined to be the leading factors constraining understory growth.

New cooperative ecology projects were initiated to study post logging succession and tree regeneration problems in riparian floodplains. A study on old growth forest edges was also initiated including study site selection, vegetation characterization and microclimatic instrumentation.

Long-term Productivity

Studies of cloud water chemistry showed that deposition of nutrients and pollutant ions via cloud water impaction and precipitation are extremely low in southeast Alaska, emphasizing the importance of nutrient removals during harvest, and the positive role of nitrogen-fixers. A model that describes long-term changes in the nitrogen capitol under various managment regimes over rotations of stands has also been prepared. A study was also completed at Glacier Bay where forest productivity is declining, apparently in response to natural soil development processes that reduce decomposition rates of organic horizons.

Cooperative studies, partly funded by the Forest Service Competitive Grants Program, were carried out to determine key soil biochemical processes that limit soil permeability, decomposition, and overall productivity. Several manuscripts were prepared which demonstrate that soil development processes and treefall may be critical factors affecting forest productivity in southeast Alaska. Nitrogen and phosphorous were shown to

accumulate in organic and mineral horizons in unavailable forms potentially affecting productivity during a single rotation.

Contacts were also made with ecologists working in southern Chile and permanent plots were established there for new global temperate rainforest comparative study and scientific exchange programs. Biomass and productivity data and relevent literature on nutrient cycling were analyzed and synthesized to address the affects of forest land use practices on atmospheric carbon.

Demand for Timber Products

The Tongass National Forest is being managed under the Tongass Land Management Plan that was completed and implemented in 1979. This Plan is currently being revised. The anticipated cost of supplying timber from the Tongass National Forest and the projected demand for Tongass timber will play an important role in evaluating plan alternatives.

Forest products produced from timber harvested on the Tongass National Forest are shipped prlmarily to Pacific Rim nations. While there is a growing body of research dealing with international demand for forest products, information on the demand for products which can be produced specifically from Southeast Alaska was found to be insufficient to complete the planned revision of the Tongass Land Management Plan without additional study. In fiscal year 1987, the Pacific Northwest Research Station began a series of studies to provide timber demand information specifically for Alaska.

In summary, the study by the Station and its contractors yielded two major conclusions:

1. A harvest projection

   Total harvest in Alaska is expected to average 660 million board feet per year during the early 1990's and 545 million feet per year between 1995 and 2005. Harvest from National Forests necessary for total supply to meet expected demand will fluctuate in the neighborhood of 400 million board feet per year from 1990 to 2010. This projection for the National Forests is based on an assumption that private ownerships will continue to supply roughly 375 million board feet in 1990, roughly 160 million board feet by 1995 and 100 million board feet in 2005. Approximately 45 million board feet would be needed from other sources such as the State of Alaska, imports, etc.

2. Implications for the Alaska Forest Sector

   Although Alaska is well endowed with timber resources, this does not guarantee competitiveness in domestic and international markets in the future. In offshore markets, Alaska will face increasing competition from producers in the Pacific Northwest, British Columbia, Chile and New Zealand. Production of premium products will remain Alaska's competitive advantage. This is an advantage over Chile and New Zealand (at least in the near term) for many products. The advantage relative to other North American producers is less clear, and if it exists, is true for only a small group of products.

   Producers in British Columbia, Washington and Oregon are expected to lose some share of the US domestic market to the southern states where timber production is expanding on private timberland that is relatively inexpensive to log. This may increase the attention western producers focus on Pacific Rim markets and the intensity of the competition faced by Alaska producers. This heightened competition increases the importance of marketing efforts in expanding Alaska forest products output.

Competitiveness in offshore markets relative to producers in other countries is and will continue to be strongly influenced by exchange rates. Consumers in Japan, Australia and other countries are willing to pay a premium for high-quality lumber and logs from North America. A high-valued US dollar will increase prices in the local currency and encourage these countries to substitute domestic timber products, and those from other countries, for the preferred North American products. Changes in exchange rates will not have an effect on producers in Alaska that is different than the effect on producers in Washington and Oregon. However, Alaska producers are considerably more dependent on offshore markets and therefore more vulnerable to unfavorable changes in exchange rates.

The relative advantage Alaska has in forest products, which is shared to some extent with British Columbia, has been in processing high concentrations of raw material (particularly old-growth hemlock) that can be manufactured into high-valued products. Alaska's future role as a forest products producer will depend on timber management and marketing strategies recognizing that consumers will continue to pay a premium for high-quality products and cost competitiveness is a necessity.

This study focused primarily on southeast Alaska, but there are other important forest resources in Alaska. Globally there is growing interest in boreal forest resources, some of which are located in Alaska. In the Nordic countries, boreal forests are managed on a sustained yield basis. In other areas (notably the USSR, Canada and Alaska), these resources are exploited to various degrees but are not yet systematically managed. Concerns that heavy use, or atmospheric pollution will damage these ecosystems may lead to future conflicts over the management and use of these forest resources.

APPENDIX 1

COOPERATOR COMMENTS ON THE DRAFT 1989 STATUS OF THE TONGASS NATIONAL FOREST REPORT

Copies of the draft 1989 Status of the Tongass National Forest report were mailed on May 15, 1990. The report was mailed to the cooperators named in Section 706(c) of ANILCA, commercial fishing interests, and those that had requested to review the draft report. A 45 day review period was allowed.

Only two of the cooperators, the State of Alaska and the Southeast Alaska Conservation Council (SEACC), responded to the request for review. There were no responses from others who were mailed the draft report. The comments received were transcribed and a response is provided for each comment. Copies of the State's and SEACC's responses are also provided.

COMMENTS BY THE STATE OF ALASKA

The following are comments from the State of Alaska on the draft 1989 Status of the Tongass National Forest report and responses provided by the Forest Service.

State Comment 1: On page 1-1, delete "with participating publics" and replace with "after listening to public concerns". This clarifies that the land managers made the decisions rather than suggesting that the decisions were made jointly with the public participants. Many decisions about how to manage the Tongass, moreover, were made by the U.S. Congress in 1980, rather than through the Forest Service's TLMP process.

Forest Service Response: The suggested change in wording has been made. The Forest Service acknowledges that its managers were responsible for adopting the Tongass Land Management Plan; the first forest plan in the nation to be completed after the passage of the National Forest Management Act amended the Renewable Resources Planning Act. State and other federal agency representatives participated actively in the process of developing the original Tongass Land Management Plan as formal Task Forces and Interdisciplinary Team members. Chapter 1 has been modified to note that the Forest Plan had to be amended to meet the Congressional direction established in ANILCA.

State Comment 2: The final 706(b) report should acknowledge the technical concerns which the State has raised (about the revision process) and how the Forest Service will resolve them prior to completion of the plan revision.

Forest Service Response: The State has raised various technical concerns which are explained in its hearing testimony before the Subcommittee on Environment, Energy and Natural Resources of the House Government Operations Committee on February 28, 1990. These concerns are being addressed in the revision process.

State Comment 3: Page 1-7 includes a statement that suggests an alternative will be formed which "incorporates an allocative land pattern endorsed by the State of Alaska". This is a misleading statement.

Forest Service Response: The reference to an endorsement by the State of Alaska has been removed.

State Comment 4: Alternative F of the draft EIS for the Tongass Plan revision is misleading because it includes the 12 areas of the original Southeast Conference, which total 673,000 acres, in the larger context of the 3,800,288 acres proposed to be administratively designated as "primitive recreation", and for the other reasons stated.

Forest Service Response: A Draft Environment Impact Statement for the Tongass Land Management Plan Revision (DEIS) was released for public review and comment on June 26, 1990. Since the State of Alaska's comment pertains to the representation of an alternative in the DEIS, it has been transmitted to the revision team for consideration and response. Chapter 1 of the draft 1989 Status of the Tongass National Forest report contained references to the planned publication of a DEIS and a general description of seven alternatives. Similarly, the final 1989 Status of the Tongass National Forest report provides only a general description of the alternatives and refers the reader to the DEIS for a detailed description of the alternatives and their possible environmental consequences.

State Comment 5: The land allocations of the Regional Forester's preferred alternative were mischaracterized in a June 26 Forest Service press release as being endorsed by the Governor.

Forest Service Response: The Forest Service has provided the State of Alaska a letter acknowledging that the news release should have been more accurate in representing the Governor's position. In describing his preferred alternative, the Regional Forester did correctly portray the Governor's support for certain land allocations proposed by the original Southeast Conference, which are included in the preferred alternative.

State Comment 6: Chapter 6 does not indicate that Alaska's principal competitive advantage in Pacific Rim markets is the availability of premium quality sawlogs from existing old growth stands. Not indicated is that this advantage will diminish as the supply of clear, fine-grained sawlogs from old-growth trees is replaced by faster growing, coarse-grained sawlogs from second-growth timber stands. This qualitative change and anticipated effects on Alaska's competitive advantage should be acknowledged in the report to Congress.

Forest Service Response: Alaska's comparative advantage in processing fine-grained sawlogs is acknowledged in Chapter 6. Emphasized in Chapter 6 is a synthesis of new findings. Alaska's comparative advantage in fine-grained Spruce sawlogs and disadvantages in other species has been reported to Congress on a number of occasions, most recently in the 1988 Timber Supply and Demand report (August 1989):

> *"Southeast Alaska's comparative advantage in forest products will remain its stocks of mature tight-grained Sitka spruce, hemlock and cedar. Alaska is the principal supplier of Sitka spruce to the Pacific Rim marketplace, accounting for up to 68 percent of the total spruce exports from North America. Alaska's Sitka spruce is generally the highest quality available in the world and the select cuts command premium prices (Wissman et al 1983). Similarly, in good markets, cedar logs and the clear hemlock lumber yield excellent returns in the Japanese market.*

In contrast, Alaska's more abundant supplies of lower quality spruce and hemlock must compete with utility volumes of Douglas Fir, Cascade hemlock, Radiata Pine and Southeast Asian hardwoods in packaging and construction end-uses in the Korean, Chinese and Taiwanese markets. For these price-sensitive traders, several species meet end-use specifications; therefore, delivered cost is paramount. As a result, market prices for lower grade logs, cants and lumber fluctuate widely. This price uncertainty affects landowners and managers marketing timber stands which have a high component of low-grade fiber. Potential purchasers have an incentive to lower their bid to cover risk when confronted with the prospect that prices may decline significantly before the first log is taken from the woods"(page 19).

State Comment 7: Congress should be advised of Forest Service intentions regarding the Forest Service proposal to assume lead responsibility in managing water quality on national forest land. Also, Congress should be advised of the current status of water, air, and other environmental quality issues, and Forest Service management initiatives which will be taken to address them.

Forest Service Response: Forest Service initiatives to manage water, air, and other valuable environmental resources on the Tongass National Forest are reported in the Draft Environmental Impact Statement for the Tongass Land Management Plan Revision. The environmental consequences of alternative land allocations are displayed. Details are provided on how the agency proposes to continue to improve resource stewardship. For example, see Appendix, Volume III of the DEIS which contains the management prescriptions, forest-wide standards and guidelines and best management practices which are proposed.

COMMENTS BY SEACC

The following are comments by SEACC on the draft 1989 Status of the Tongass National Forest report and responses provided by the Forest Service.

SEACC Comment 1: Your employment graph entitled "Employment Dependent on Forest Products" is terribly misleading. You should focus on employment that is dependent upon Tongass timber harvest *only* -- not on figures that also include harvesting on private lands.

Forest Service Response: SEACC refers to figure 3.1 on page 3-2. The graph displays "Employment Dependent on Forest Products, Commercial Fishing, Tourism and Resident Recreation in Southeast Alaska, 1981-89". Contained in chapter 3, *The Impacts of Wilderness Designations on the Forest Products, Fisheries and Tourism Industries of Southeast Alaska*, figures 3.1 and 3.2 report information which has been displayed in the two prior 706(b) reports. These data represent the baseline for Southeast Alaska for assessing the impacts on employment and personal earnings of wilderness designations in ANILCA as required by section 706(b):

> "*This report shall include, but not be limited to, ...*
> *(2) the impact of wilderness designations on the timber, fishing, and tourism industries in southeast Alaska;* "

SEACC Comment 2: SEACC firmly believes the importance of the Tongass to commercial fishing employment is deliberately underestimated. For example, other Forest Service documents state that 90 percent of the salmon harvested in Southeast Alaska are spawned and reared in Tongass watersheds -- in contrast to the 80 percent figure cited in this draft report.

Forest Service Response: The Forest Service has consistently stated the following salmon harvest relationships for the Tongass National Forest and the Alaska Region. Salmon production from the Tongass provides about 80 percent of the annual salmon harvested in Southeast Alaska. Salmon production from lands administered by the Forest Service in Alaska (Chugach and Tongass National Forests) represent about 20 percent of the salmon harvested state-wide. Salmon spawned on the Alaska Region (Chugach and Tongass National Forests) represents about 90 percent of all salmon produced from lands administered by the Forest Service (all national forests).

SEACC Comment 3: It is clear from pending legislation and Alaskan support for reform that the TLMP Revision chapter, like the Revision itself, will have to be rewritten. The Revision's "preferred alternative" is out of touch with the concerns of many Alaskan communities, not to mention being built on a foundation of terribly flawed computer data, questionable assumptions, and faulty analyses.

Forest Service Response: The draft chapter on Revising the Tongass Land Management Plan has been rewritten to reflect the progress in the revision effort since it was circulated for review and to respond to comments from the State of Alaska. The draft chapter did not address the Regional Forester's preferred alternative.

SEACC Comment 4: The Draft 706b report cites a projected timber demand of roughly 400 million board feet/year for the next two decades. It is interesting to note that this 706b report is now the fourth Forest Service research document to predict a demand projection of 400 mmbf/year or lower. Despite the above documentation, your flawed Draft TLMP Revision "preferred alternative" embraces a demand projection of 420 million board feet/year.

Forest Service Response: The fiscal year 1989 Status of the Tongass document reports the findings of research recently completed which suggest that the harvest from National Forests necessary to equate total supply with expected demand may average 400 million board feet for the period 1990-2010. This projection of international market demand and competitive supply conditions (prepared in 1989) is based on assumed contributions by private ownerships in Alaska to timber supply. Increases in the prices of wood products, reductions in private timber supply in Alaska, or changes in competitive timber supply in other regions such as the Pacific Northwest may affect projected harvest levels. Demand and harvest projections are not the same. The quantity of timber demanded from the Tongass National Forest depends on the delivered price in world markets of wood products produced in Southeast Alaska versus the delivered price of wood products from competitive suppliers located elsewhere. A projection of harvest requires additional assumptions about timber availability and the comparable costs of harvesting, processing and transporting timber and wood products in competing regions. Given the number of variables included in a harvest forecast extending over 20 years, the mean of the forecast has a confidence interval which widens through time. For example, a 10 percent underestimation would put the realized harvest level at an average of 440 million board feet. In short, it is reasonable to expect, based on the research findings, annual timber harvests on the Tongass in the future which vary between 360 and 440 million board feet and ten-year averages which vary by 5 percent from the forecast, i.e., between 380 and 420 million board feet per year.

STATE OF ALASKA

OFFICE OF THE GOVERNOR

OFFICE OF MANAGEMENT AND BUDGET
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July 6, 1990

Mr. Michael A. Barton
Regional Forester
USDA Forest Service
P. O. Box 21628
Juneau, Alaska 99802-1628

JUL 06 1990

Dear Mr. Barton:

The State of Alaska has completed its review of the May 1990 draft Status of the Tongass National Forest report required by Section 706(b) of the Alaska National Interest Lands Conservation Act (ANILCA). We appreciate Michael Martin's willingness to accept the State's comments during the week of July 2, 1990.

The U.S. Congress appears to be nearing the conclusion of its deliberations to reform management of the Tongass National Forest. At this time, we will only reiterate that in 1986 the State of Alaska made a number of recommendations (which are largely still valid) to the Forest Service and the Congress regarding management of the Tongass Forest that need not be repeated here. We support the Senate version of Tongass reform legislation which, if enacted, will remedy many of the problems which the State identified in the first Section 706(b) report. The next 706(b) report (1991) will provide an opportunity to review the early effects of legislative changes as well as any other changes arising from the adoption of a revised forest plan.

A few specific comments need to be made regarding the draft report.

Chapter 1

Page 1-1, second paragraph: Delete parenthetical and replace with underlining, as follows: "National Forest land managers, (with participating publics) after listening to public concerns, made decisions..." This clarifies that the land managers made the decisions, rather than suggesting that the decisions were made jointly with the public participants. Many decisions about how to manage the Tongass, moreover, were made by the U. S.

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Congress in 1980, rather than through the Forest Service's TLMP process.

Page 1-2 through 1-7: Regarding the TLMP revision process and the Analysis of the Management Situation, the State of Alaska has raised serious technical concerns about the document and the TLMP data base, assumptions, and analyses from which it is derived. These concerns are explained in the State of Alaska's testimony at the February 28, 1990 hearing of the Subcommittee on Environment, Energy and Natural Resources of the House Government Operations Committee. The final 706(b) report should acknowledge the technical concerns which the State has raised, and how the Forest Service will resolve them prior to completion of the plan revision.

Page 1-7: The draft EIS is described as having "about seven alternatives", including one alternative which "incorporates an allocative land pattern endorsed by the State of Alaska". This is a misleading statement. The draft EIS, released for public review on June 26, 1990, contains Alternative F, the theme of which (according to the accompanying map) "is to manage for non-timber uses the 12 'protected areas' recommended by the Southeast Conference and endorsed by the Governor of the State of Alaska". The Alternative F map is seriously misleading because it shows 3,800,288 acres proposed to be administratively designated as "primitive recreation". Although the 12 areas in the original Southeast Conference compromise proposal appear to be incorporated within the 3.8 million acres of Alternative F's primitive recreation classification, these areas constitute only 673,000 acres of national forest land and will have less impact on the commercial forest base. In addition, the State of Alaska endorses permanent statutory protection for the 12 areas, rather than the administrative designation proposed by the Forest Service--a designation which would be revisited in the next 10-15 years following adoption of the final plan.

Also, as noted in a letter from this office to the Alaska Regional Forester on July 2, 1990, the land allocations in Mr. Barton's preferred alternative, which are a combination of Alternatives F and G, were mischaracterized in a June 26 Forest Service press release as being endorsed by the Governor.

Chapter 6

Page 6-12: The two major conclusions yielded by the Alaska Timber Marketing Studies do not address the long-term effect of the anticipated decline in the quality of sawlogs as old-growth timber stands are gradually replaced, following harvesting, by second-growth stands. As indicated, the premium quality sawlogs from existing old growth stands constitute Alaska's principal competitive advantage in Pacific Rim markets. Not indicated is

that this advantage will diminish as the supply of clear, fine-grained sawlogs from old-growth trees is replaced by faster growing, coarse-grained sawlogs from second-growth timber stands. This qualitative change and anticipated effects on Alaska's competitive advantage should be acknowledged in the report to Congress.

New Chapter Needed

Now that the Forest Service has formally applied to the State of Alaska under Section 208 of the Clean Water Act (CWA) for lead responsibility in managing water quality on national forest land, it should provide an expanded discussion about the need for additional management attention to the protection of water quality and control of nonpoint source pollution.

There are two current management initiatives which will influence the management of water quality on the Tongass: The Forest Service's recent request to be designated as the water quality management agency for national forest land under the CWA; and the significant role which the Forest Service will play in implementing the Alaska Nonpoint Source Pollution Control Strategy. Assumption of this role must be preceeded by substantive discussions with the Alaska Department of Environmental Conservation to identify issues needing resolution. The Congress should be advised of Forest Service intentions regarding assumption of this water quality management role, and current status of water, air, and other environmental quality issues, and Forest Service management initiatives which will be taken to address them.

Thank you for the opportunity to comment. We request that this letter be inserted in the final 1990 report to Congress.

Sincerely,

Craig J. Lindh

for Robert L. Grogan
Director

cc: Commissioner Collinsworth, DFG
Commissioner Gorsuch, DNR
Commissioner Kelso, DEC
Commissioner Merculieff, DCED
John Katz
Denby Lloyd

Southeast Alaska Conservation Council

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(202-547-0141

July 20, 1990

Mike Barton, Regional Forester
U.S. Forest Service, Region 10
Box 21628
Juneau, Alaska 99802

Dear Mike:

I know that this is a bit late, however I wanted to send you a few comments concerning the Forest Service's May 1990 Draft ANILCA 706b Report on the Status of the Tongass.

First, your employment graph entitled "Employment Dependent on Forest Products" is terribly misleading. You should focus on employment that is dependent upon Tongass timber harvest only -- not on figures that also include harvesting on private lands. According to your agency's own most recent "Supply and Demand Report," the number of people directly dependent on Tongass timber harvest is 2083 -- just 1/3 of what your misleading graph depicts. It is disappointing that the Forest Service fails to give a straightforward presentation of these facts.

Second, SEACC firmly believes the importance of the Tongass to commercial fishing employment is deliberately underestimated. For example, other Forest Service documents state that 90% of the salmon harvested in Southeast Alaska are spawned and reared in Tongass watersheds -- in contrast to the 80% figure cited in this draft report.

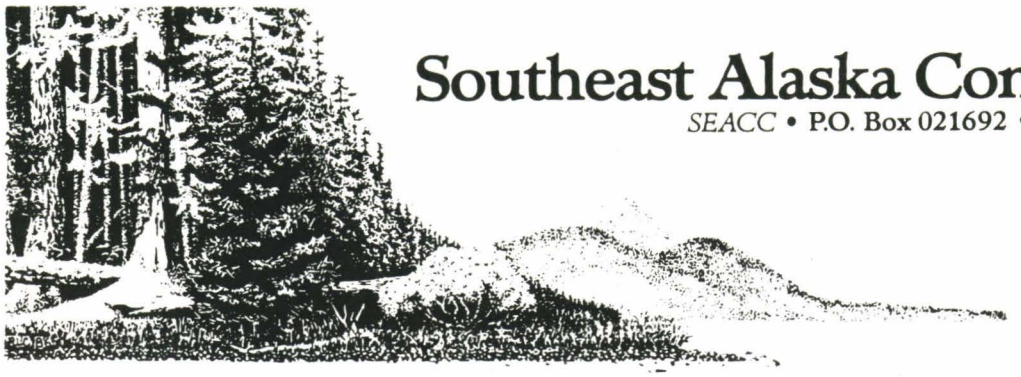
Third, it is clear from pending legislation and Alaskan support for reform that the TLMP Revision chapter, like the Revision itself, will have to be re-written. The Revision's "preferred alternative" is out of touch with the concerns of many Alaskan communities, not to mention being built on a foundation of terribly flawed computer data, questionable assumptions, and faulty analyses.

Fourth, the Draft 706b Report cites a projected Tongass timber demand of roughly 400 million board feet/year for the next two decades. It is interesting to note that this 706b report is now the fourth Forest Service research document to predict a demand projection of 400 mmbf/year or lower. (Previous to this, your agency commissioned two studies which predicted roughly 400, and the 1989 RPA Assessment predicted a level of 388.) Despite the above documentation, your flawed Draft TLMP Revision "preferred alternative" embraces a demand projection of 420 million board feet/year.

Sincerely,

Bart Koehler

Bart Koehler
Executive Director



Southeast Alaska Conservation Counci

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July 20, 1990

Mike Barton, Regional Forester
U.S. Forest Service, Region 10
Box 21628
Juneau, Alaska 99802

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Executive Director